Development Challenges in Africa

Towards 2050

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[1] This report is in draft and will be finalized to reflect feedback from planned discussions.

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ABBREVIATIONS AND ACRONYMS

CAEMU	Central African Economic and Monetary Union
CES	City Enabling System
CPR	Contraceptive Prevalence Rates
DHS	Demographic and Health Surveys
DRC	Democratic Republic of the Congo
ECSC	Ethiopia's Civil Service College
EITT	Extractive Industries Transparency Initiative
FDI	Foreign Direct Investment
HIPC	Highly Indebted Poor Countries
ICT	Information and Communication Technology
MDRI	Multilateral Debt Relief Initiative
PPP	Purchasing Power Parity
SACN	South African Cities Network
SSA	Sub-Saharan Africa
TFP	Total Factor Productivity
TFR	Total Fertility Rates
WAEMU	West African Economic and Monetary Union

CHAPTER 1: INTRODUCTION AND OVERVIEW

Africa is at a critical turning point. After decades of disappointing performance, growth has been strong over the last decade and offers the foundation for transforming the continent over the next two generations. The recent improved performance has also raised the aspirations of Africans across the continent and renewed global interest in Africa, including FDI. What Africa, its leaders, and its partners do now will determine whether the rising aspirations of Africans and global expectations are met or not.

This report lays out a broad Africa 2050 scenario in which Africa catches up (or converges) with the rest of the world to narrow the gap in terms of living standards and productivity. It describes a future for Africa of individual prosperity in cohesive societies, competitive economies, and strong regional-global interaction. Under such a scenario, by 2050 per capita incomes would grow six-fold, moving from one quarter of the global average to one half. The number of poor would be reduced ten-fold to fewer than 50 million. The majority of Africans would join the middle class. Africa's share of global GDP would triple to 9 percent. This is a vision of what could be but it is not a prediction. It is only one of several possible scenarios and actions taken today will be key to determining which is realized.

Action will be required in many domains to realize the Africa 2050 convergence scenario described in Chapter 3. Complementing JICA's flagship report *Inclusive and Dynamic Development in Sub-Saharan Africa*[2], this report examines five issues that are important for turning such a scenario into reality: macroeconomics, poverty and inequality, demography, urbanization, and natural resources.

The first two chapters set the macroeconomic framework and 2050 scenarios which underlie the entire report. The subsequent four chapters examine specific issues (demography, poverty and inequality, urbanization, and natural resource revenues) that are incorporated into the scenarios and which cut across the sector issues addressed in other work.[3]

Macroeconomics (Chapter 2)

The chapter on macroeconomics provides both an assessment of Africa's economic performance since the independence of much of Africa in the 1950s and 1960s, and the macro-economic policy framework that would provide the foundation for its robust development in the next forty years. In the broadest terms, Africa's economic performance since the 1960s can be divided into three periods. The first decade after independence showed a strong but short-lived rebound in growth rates. Then from 1970 to 1995, a combination of unsustainable economic policies, external shocks, failure to adjust to changing economic conditions, and increasingly exclusionary politics produced 25 years of decelerating growth, which culminated in a stagnation of progress in most social indicators. Since the mid-90s, painful economic adjustment, stronger macroeconomic management, and greater openness to trade and private sector activity, substantially aided by the dramatic improvement in commodity prices in the last decade, have led to a steady acceleration of per capita growth rates. In addition to growing faster over

[2] The JICA Flagship report coverage includes agriculture, industrial development, infrastructure, health and education, state building and conflict prevention, and climate change.

[3] In addition to the above-mentioned JICA report, see the Emerging Markets Forum's "Africa 2050: Realizing the Continent's Full Potential."

the last decade, most African economies were also relatively resilient to the 2008 global financial crisis—some because of large external reserves generated by natural resource exports, others because of little integration with the global economy—which also makes them poor, and for a leading few because of strong macro management, banking reforms, and export diversification.

Over the same 50 years, many other developing regions—especially Asia—showed uninterrupted, higher economic growth and slowing population growth. As a result, Asia's per capita GDP has soared relative to the world average while Africa's has stagnated. The Asian performance beginning with the sustained high growth of Japan, followed by that of the newly industrialized Asian tigers, and now of China and India, shows that sustained high growth is possible, even in countries that are strikingly different in size, resource endowment, initial human capital, culture, and political regimes. Based on this Asian experience and also both the successes and difficulties faced by Lain America over the past 40 years, the macroeconomic chapter puts forth a macroeconomic policy framework that would be the foundation of a higher and more sustained growth of African economies between now and 2050, including by ensuring macro-economic balances, higher savings and investment rates as well as a much more conducive business environment that will make Africa a haven for private investment and ensure continuous growth in productivity. This framework guides the work on all elements of this study and underlies the scenarios for Africa in 2050.

2050 Scenarios (Chapter 3)

Three scenarios of Africa's future economic trajectory through 2050 are presented in Chapter 3: the "Convergence" scenario, the "Business as Usual" scenario, and the "Downside" scenario. The scenarios were developed with Centennial Group International's Global Economy Model which was also used in the Asia 2050 and Latin America 2040 studies. The convergence scenario assumes strong reform action, including in the five areas addressed in this report. Under such a scenario per capita incomes in Africa could grow by 4.6 percent annually over the next 40 years and exceed US$17,000 (2010 PPP US dollars) in 2050. Africa-wide per capita income would be higher than that of Russia, Malaysia or Turkey today. Under such a scenario, Africa's average per capita income would rise from 27 percent of the world average today to 52 percent. Such sustained growth would set in motion many changes which would genuinely transform the lives of Africans and Africa's role in the world. The size of the middle class would increase more than 100-fold and increase to 69 percent of the population from 12 percent today. The number of poor would decline to 53 million (or under 3 percent of the population) from 384 million (or 36 percent) today. In global terms Africa's share of world GDP would more than triple from less than 3 percent today to 9 percent in 2050.

The business-as-usual scenario assumes that Africa's higher investment rates of recent years continue, its labor force continues to grow, commodity prices remain high, and the generally improved policies of the last 10-15 years are maintained—but there is no sustained action on the remaining policy and institutional reform agenda and therefore these determinates of growth would not improve further. As a result, on the productivity front nothing much changes. The opportunity cost borne by average Africans would be enormous if the African economies fail to realize the convergence scenario and remain stuck in the business-as-usual scenario -- per capita income lower by more than US$10,000,

some 40 percent of the population (895 million) unable to reach middle class status, and an additional 15 percent of the population (325 million) mired in poverty.

The business-as-usual scenario is, however, by no means a low-case scenario. A much more dire or "downside" scenario is also plausible and could be triggered by an increase in fragility and conflict, growing inequality, a failure to slow population growth, or commodity price swings. Under the downside scenario per capita income would grow by less than one percent a year, reaching only US$4,000 (2010 US dollars PPP) in 2050. But, given faster growth in the rest of the world, it would fall to only 15 percent of the world average. One in three Africans would still be in poverty. On the global stage Africa would have only 2 percent of world GDP. Such a scenario must be avoided at all cost.

The convergence scenario is feasible but will be realized only if there is vigorous and sustained implementation of policy and institutional reforms. This scenario requires sustained, higher productivity growth for most countries over the next 40 years. Countries in other regions (particularly many in East Asia) have achieved such sustained productivity growth, but not many. African leaders therefore must focus on realizing the convergence scenario.

Demography (Chapter 4)

Chapter 4 highlights both the major demographic changes that will shape the continent and the importance of accelerating the demographic transition. Over the next 40 years, Africa's population is likely to at least double, reaching 1.9 to 2.5 billion, and the number of youth will increase from 205 million today to anywhere from 330 to 450 million. These demographic shifts can lead to higher productivity and per capita incomes or to unmanageable social tensions, violence, and conflict. The chapter thus assesses one of the key parameters for the macroeconomic modeling, the prospects for poverty reduction, and the dimensions of urban growth dealt with in other chapters

The potential for a demographic dividend is clear. Africa's share of the world labor force will grow and, if fertility declines, its dependency ratio will fall. This creates the potential for a rapid rise in per capita incomes—a demographic dividend—as both worker productivity and the share of the population that is employed increase.

In the simplest terms, realizing the potential depends on people finding higher productivity jobs. One key question is jobs for how many people? Under the UN's low-fertility variant, Africa's working age population would increase by 630 million—from 470 million today to 1.1 billion by 2050—and its dependency ratio would fall from 119 today to 76 in 2050. Even with no change in productivity this would yield nearly a 25 percent increase in per capita incomes as a result of the greater number of workers for every child or elderly person, and a virtuous circle of increased income to increased savings to increased investment to even higher income.

In sharp contrast, under the UN's high-fertility variant, the working age population would increase by 780 million by 2050 and the dependency ratio would fall only to 98 from 119 today. With no other changes, the result would be only around a 10 percent increase in per capita incomes. Under the high-

fertility variant, which already assumes a decline in fertility from today's levels, it is highly unlikely that Africa would be able to increase jobs and productivity enough to raise per capita incomes substantially.

Similarly, the increase in the number of children to be cared for is directly related to the pace of fertility decline. Under the UN's low fertility variant, in 2050 Africa would have roughly 100 million more children than today to be educated, kept healthy, and housed. Under its high fertility variant, there would be more than 400 million more. Providing quality and health, education, and other services to 100 million more children may be a challenge but is doable. Trying to provide them for more than 400 million more is likely to put an unbearable strain on both institutional and fiscal capacity and hence deprive these children of the skills needed to create and prosper in a dynamic Africa of 2050. Fertility issues are also directly related to poverty and inequality as the poorest segments of society frequently have the highest fertility and suffer most from the lack of quality education and other services.

The population will continue to increase but the pace of fertility decline is a key determinant of the number children to be educated, the number of jobs needed, and the number of young and old supported by every working adult. The difference in these numbers across fertility scenarios is very large. If fertility were to stay at today's levels or even decrease to the UN's high-fertility variant, it is very unlikely that Africa could produce either the required access to quality education or jobs.

How many jobs and what kind of jobs? Job creation is both more uncertain and more amenable to big changes than population growth. Even the low-fertility scenario implies a need for 12-15 million new jobs every year just to absorb the increase in the working age population. Big increases in jobs will have to come from the private sector. Given rudimentary social protection systems, unemployment is not an option for most and household enterprises are likely to stay the residual source of employment. It is very likely that people will be employed; the question is whether they will be employed in low-productivity traditional agriculture and household enterprises (survival jobs) or in higher-productivity agriculture, manufacturing, and services jobs that are transformational. The answer depends on whether workers have the needed skills and private investors have the confidence to invest.

Poverty and Inequality (Chapter 5)

The poverty and inequality chapter argues that Africa's sustained growth both requires the mobilization of the totality of the society's human resources and provides the only effective means for social mobility and reduced outcome disparities. Such a reduction in disparities is key for realizing the 2050 convergence scenario developed in Chapter 3.

While poverty rates have declined over the last decade in much of Africa, inequities and disparities are still growing nationally, regionally, and with respect to the rest of the world. At the national level, inequality, as measured by Gini coefficients, increased over the last decade in two-thirds of the African countries for which data are available. As a result, income inequality in Africa is now higher than in any other region of the world except Latin America (where income inequality is finally declining). The earnings of the richest 20 percent of the population are 11 times those of the poorest 20 percent in Africa compared to only 7 times greater in Asia. At the regional level, per capita incomes in the five richest African countries are 30 times those of the poorest five countries today, compared to 16 times

greater twenty years ago. Finally, African per capita incomes are a smaller share of the world average than they were at independence and this share has remained stagnant over the last decade. Thus even as concerns about the number of people living in absolute poverty are alleviated over time, inequities and disparities will and must remain a major concern to economic policy makers and political leaders alike throughout Africa.

Access to basic services, such as education, health and sanitation, has again improved considerably over the last decade. Like reductions in poverty, however, the overall improvement in access masks large and sometimes growing disparities in access based on gender, rural or urban location, and family income level. They deserve much greater attention.

The Africa Progress Panel has clearly stated the implications of inequities and disparities: "Not all inequalities are unjust, but the levels of inequality across much of Africa are unjustified and profoundly unfair. Extreme disparities in income are slowing the pace of poverty reduction and hampering the development of broad-based economic growth. Disparities in basic life chances— for health, education and participation in society—are preventing millions of Africans from realizing their potential, holding back social and economic development in the process." Any further growth in inequities would likely spur social unrest, ranging from possible collapse in fragile countries to increased social tension in more stable countries to large population movements across borders.

Sustained high growth as envisioned in the convergence scenario for 2050 would make a significant impact on poverty and on the share of Africa's population moving into the middle class. Given the dimensions of the problem, increasing the opportunities for the most vulnerable is the only way to both sustain overall growth and reduce disparities. Jobs may be the vehicle for people to move out of poverty, but disparities in access to quality education, health, and other services must be reduced dramatically for the poor to board this vehicle. Current disparities of opportunity range from unequal access to health and education services almost everywhere to dualistic labor markets in richer countries. These concerns and their resolution are reflected throughout the report which focuses particularly on inclusive growth and the challenge of creating millions of well-paying jobs each year and of training Africa's young and fast growing labor force to meet the requirements of these jobs.

Urbanization (Chapter 6)

Chapter 6 highlights that if people have skills, if cities function well, and if economies are open to competition, then Africa's cities—which will triple in size from a population of 400 million today to at least 1.1 billion in 2050—will be the loci of job creation. The size of urban markets, rising income of urban residents, and concentration of economic activity could make cities dynamic centers for higher productivity jobs—offering the prospects of a better life to more than one billion people. On the other hand, if people are illiterate and unskilled, cities dysfunctional, and economies trapped in extractive activities and/or crony capitalism, urban areas would be poor and violent— offering only the desperation of hopelessness to residents.

All the prospective health gains, all the potential for a dramatically expanded and enhanced skills base, and the possibilities for generating jobs and attracting investment in Africa, will depend on how

effectively cities function—how well, and to what level of quality, services are sustainably delivered—since it is the urban areas where most of the future population will live and where the jobs will have to be created. African cities are already the fastest growing in the world, and by 2050, the continent could be home to fifteen mega-cities of more than 10 million inhabitants.

Larger urban populations also mean that cities will occupy more land to accommodate businesses, housing, public spaces, and circulation. Physical expansion will require increased capacities of the associated water and sewerage systems, sanitation and solid waste management, roads and drainage, parks and recreation, electricity supply—all of which are to be provided on a massive scale by cities which, for the most part, have failed to meet much less pressing service demands to date. Recent studies have shown that despite the economic gains made by Africa over the past decade, and unlike Asia, there has been a significant increase in urban slums and a worsening of urban poverty levels.

Moreover, experience worldwide shows that urban service demands cannot be sustainably delivered from the center, but have to be driven and managed by city government. This is a significant challenge in Africa where most political environments do not provide the enabling policy, fiscal frameworks, and legal and regulatory regimes necessary for cities to function effectively. In addition, city governments only operate effectively if there are clear lines of accountability and consequences between them and their constituents.

Cities may be the locus of most economic activity but it is private sector firms that will drive growth and job creation. Cities must not only provide traditional urban services to their residents but be very focused on creating the environment required to attract and grow private businesses.

The most critical area for action over the next ten years will be institutional—introducing and making operational key systems of local government that are essential to effective city management. Establishing such systems requires action on five broad fronts. First, there must be clear definition of the functional responsibilities assigned to urban government. Second, sound legal and regulatory frameworks for functional and fiscal operations must be established. Third, predictable sources of local revenue need to be identified, including a transparent architecture for central-local fiscal transfers. Fourth, effective social contracts between urban local government officials and their communities must be built to support good governance and strengthened accountability. Finally, urban local government capacity needs to be strengthened through a process of “learning by doing”.

Natural Resources (Chapter 7)

Chapter 7 addresses three main issues related to natural resources. First, how Africa can sustain, and even raise, the growth rates it has experienced recently by increasing the share of revenues accruing to the country from the production and export of natural resources. Second, how best to preserve and invest these revenues. And finally, how best to diversify the economies over time in order not to rely too heavily on natural resources to continue its growth.

Africa is well-endowed with mineral resources. It accounts for more than 5 percent of both production and reserves of oil, gas, bauxite, titanium, copper, and gold. In addition, many of its reserves are of

particularly high quality. As a result, natural resources play a big part in the regional economy. Hydrocarbon and metals exports account for more than 50 percent of exports in 14 African countries that are home to 39 percent of the continent's total population. Similarly, resource extraction rents represent more than 2 percent of GDP in 27 countries that account for 72 percent of the population. Commodity prices have historically played a big role in growth. Roughly one-quarter of African GDP growth over the last decade is attributable to commodity price increases.

Hydrocarbon and mineral wealth is intrinsically a blessing but one that can easily become a curse. Africa has examples of such resources being managed efficiently and thus contributing to dramatic improvements in wellbeing, such as in Botswana. But there are also examples where these resources have fueled wars, such as in Sierra Leone or the Democratic Republic of the Congo (DRC), or led to widespread corruption and poverty, such as in Nigeria.

Extracting non-renewable resources is, by definition, not a sustainable source of growth over the long run and creates few jobs. The source of either the blessing or the curse is that natural resource extraction generates revenues that are much greater than the cost of extraction, what economists would refer to as "rents". Everything depends on who gets the rent and how they use it. They can be stolen (and frequently sent abroad), consumed, or invested.

Countries can get more (or less) of the rent depending on the risks and costs of doing business in their country, the extent of transparency to reduce corruption, and the expertise they mobilize in contract and taxation matters. The risk is that even then such rents can lead to boom and bust cycles in the economy linked to fluctuations in commodity prices, to an overvalued exchange rate that makes diversification and the associated job creation difficult, or to unsustainable consumption that ends when the resources are depleted. The opportunity is to transform mineral assets into human, physical, and financial capital that could transform the continent and its people. The chapter offers specific recommendations as to how resource rich African countries can do so. The recommendations cover both, measures related to natural resource rents and their management, and broader economic management to enable inclusive development and private sector-led diversification of the economies.

CHAPTER 2: MACROECONOMICS

I. Introduction

The 1960s was a decade when many African countries gained independence. Driven by the desire to raise living standards across the continent, African leaders adopted a development strategy that relied heavily on an extensive system of government interventions and controls for the purposes of economic management. Price controls, import licensing, foreign exchange restrictions, controls on bank credit and interest rates, the taxation of the agricultural sector, and the establishment of public enterprises in strategic sectors were the main instruments of economic management.

In Sub-Saharan Africa (SSA), although in the 1960s there was a modest increase in per capita income and export growth was strong, there was a marked deterioration of economic performance during the 1970s. The growth rates of real GDP and per capita income decelerated, and aggregate export volume trended downward. In the 1960s there was an upswing in the terms of trade followed by a downturn in the 1970s (in the wake of a surge in oil prices). In North Africa, where the average growth rate was lower than in the SSA region in the 1960s, growth performance improved in the 1970s.

Beyond the adverse effects of the oil price shock, most countries began to experience the paralyzing influence of government interventions and controls. Savings and investment rates were woefully inadequate to meet the needs of human resource and infrastructure development, unprofitable public enterprises became an unsustainable burden on the budget, and the private investments needed for agricultural and industrial development were not forthcoming. The state-administered system of controls on domestic prices, crop marketing, credit allocation and bank interest rates, and the allocation of import licenses and foreign exchange made it extremely difficult for the private sector to function.

Following a rethinking of development strategies in SSA, an increasing number of countries began to implement far-reaching reforms to achieve macroeconomic stability and eliminate the government interventions that impeded economic activity, especially in the private sector. Economic performance was disappointing throughout the 1980s with a decline in per capita income. In the first half of the 1990s inflation rates accelerated. The first signs of economic recovery emerged only in the mid- 1990s. Throughout this protracted period of 15 years, investment-savings gaps and fiscal imbalances remained large and were financed by substantial inflows of foreign aid and external debt relief. Growth performance also weakened in North Africa during the 1980s and the 1990s.

Notwithstanding the disappointing overall economic performance of African countries during this period (1980-95), there was some evidence that countries that had improved their macroeconomic policies and implemented reforms in a sustained manner performed better than countries that were less successful in implementing structural adjustment programs. In SSA reform efforts implemented over an extended period by an increasing number of countries had led to an increase in the number of successful adjusters or countries with improved growth performance. In addition, the Franc Zone countries of West and Central Africa, where growth performance was chronically weak because of a highly overvalued exchange rate, launched new adjustment programs based on a substantial devaluation of the exchange rate in August 1994. Their economic performance improved with a short lag.

Section II traces the economic performance of Africa since 1960, distinguishing between two sub-periods; 1960-mid-1990s and the strengthened performance from the mid-1990s to date. Section III focuses on investment and savings performance. It starts by reviewing recent trends in investment and saving rates and then presents policy recommendations to raise these rates to the levels that are required in the coming decades to underpin sustained high growth rates. The concluding Section IV outlines the macroeconomic policy framework for sustainable high growth and inclusion, i.e., to achieve the Africa 2050 vision.

II. Broad trends in Africa's Economic Performance (1960 – 2011)

During the 12-year period from 1957 to 1968 thirty three African countries joined the international community as independent nations. Eight more countries gained independence over the period 1974-80. Only a few countries had gained independence prior to the 1950s: Liberia (1847), Egypt (1922) and Morocco (1927) were the earliest forerunners. A notable exception is Ethiopia, which was never under colonial rule. A. The deterioration in economic performance between the 1960s and the mid-1990s

The deterioration in economic performance between the 1960s and the mid-1990s

In the 1960s Africa's new leaders relied on highly interventionist economic policies to promote rapid economic development. These policies sought to achieve rapid industrialization by curtailing import dependence, establishing public enterprises to control and manage economic activities in strategic sectors, and putting in place wide-ranging regulations to control prices, restrict imports through strict licensing and other trade barriers, and control the availability and allocation of bank credit and foreign exchange. Governments relied on the taxation of agriculture and often on exports to raise resources for the financing of their economic development plans. Many countries were able to mobilize financial support for their development plans from foreign development partners (including both bilateral and multilateral institutions).

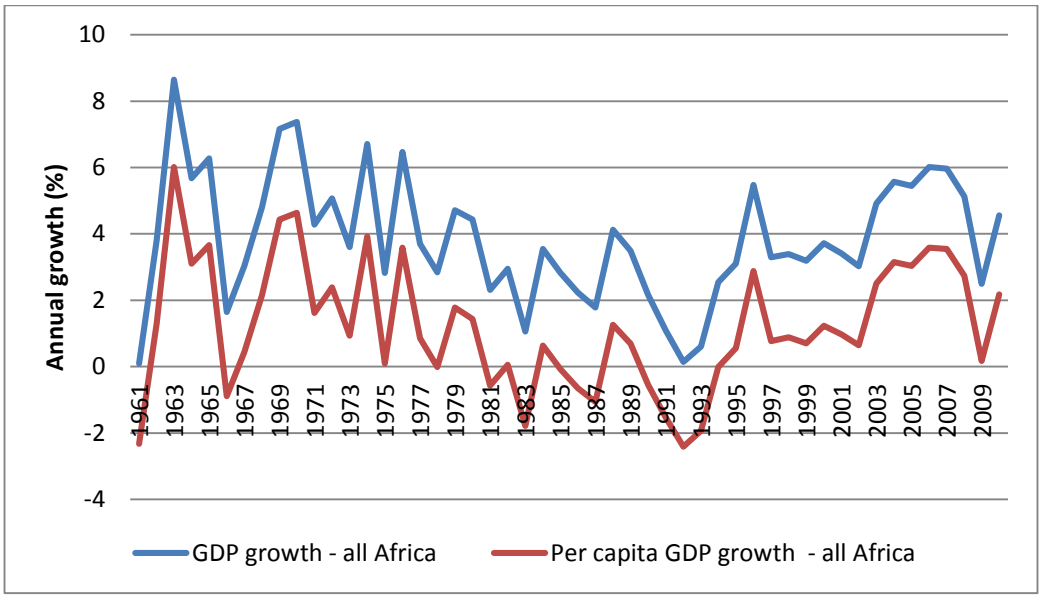
Despite the challenges of transition to new Governments and the extra caution required to work with the basic economic database of the 1960s, it is useful to report briefly on the early assessments that exist of broad economic trends in the post-independence years. The data for this study are drawn mainly from various past issues of the World Bank's African Development Indicators, the IMF's World Economic Outlook and the UNCTAD database.

Worsening economic growth performance

Africa's overall growth performance in the 1960s was encouraging and reflected several positive trends (Figure 2.1). In both Sub-Saharan Africa (SSA) and North Africa real GDP growth was on average somewhat faster than population growth, although reportedly slower than the average for other developing countries.[4] However, economic growth weakened substantially during the 1970s, especially in the non-oil and non-mineral producing countries of SSA. In North Africa the average growth rate continued to improve in the 1970s.

[4] The World Bank (1989) – "Sub-Saharan Africa: From Crisis to Sustainable Growth."

Figure 2.1: Growth rates of Real GDP and Per Capita Real GDP



Source: UNCTAD database

In the 1960s per capita GDP increased in both regions at an average annual rate of somewhat more than 2 percent (Figure 2.1). During this decade the growth in agricultural production (2.7 percent) was roughly the same as population growth in SSA countries and agricultural exports increased at about 2 percent a year.[5] Moreover, the volume of total exports from SSA reportedly grew on average at 6 percent a year, led mainly by oil exports. A surge in commodity prices in 1967 boosted exports and strengthened growth performance. The available data for North Africa (covering 1965-69) indicate that during this five year period annual growth rates (in real terms) averaged 8 percent in industry (inclusive of oil and other mining) and 4 percent in agriculture (which was noticeably faster than population growth).[6]

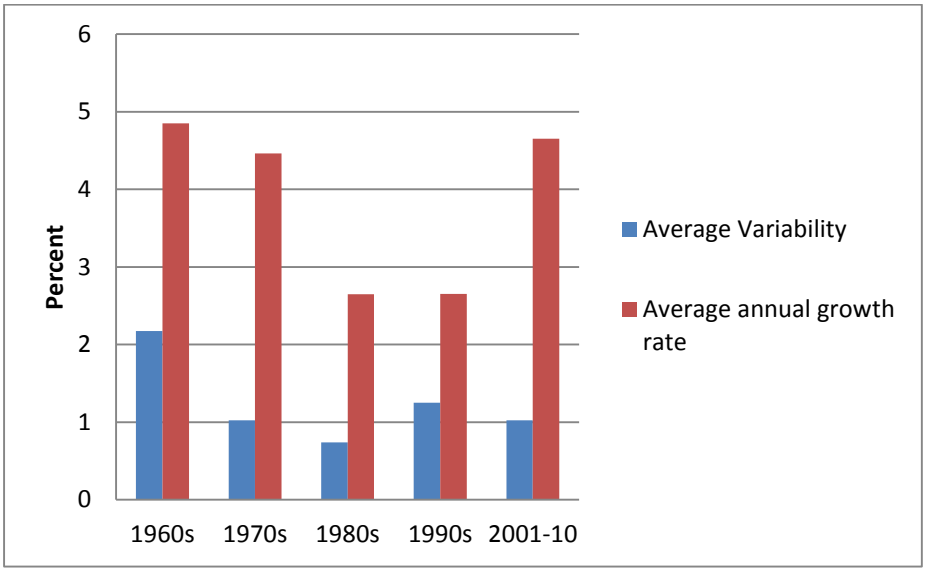
During the 1970s the decline in economic growth rates in SSA reflected a deceleration of growth rates in the non-oil and non-mineral producing countries following a substantial worsening of their terms of trade. In these countries the increase in per capita GDP was barely equal to the population growth rate. Aggregate export volume trended downward following the 1973 oil shock for all SSA countries (including oil exporters). The share of Africa's total exports in world exports declined and its share of world exports of primary commodities fell even more sharply. Agricultural exports from Africa's non-oil primary commodity exporters were on a declining trend. The non-oil primary commodity exporters of Africa had remained narrowly concentrated on a few agricultural commodities and had yet to tap into the growing markets in other developing countries (especially Asia). Mauritius and Kenya are notable exceptions where efforts were made to diversify away from exports of primary commodities.

[5] Ibid.

[6] Global Coalition for Africa (2003/04): "The 2003/04 Annual Report – African Social and Economic Trends." This publication cites World Bank data as its data source.

In the 1960s and the 1970s in both sub-regions growth performance was accompanied by a volatility of annual growth rates (Figure 2.2).[7] The relatively undiversified structure of Africa's production and exports made it difficult to moderate (or mitigate) the negative impacts of both external and internal shocks.

Figure 2.2: Average Variability in Growth Rate - all Africa



Source: Derived from UNCTAD data used in Figure 2.1

The deterioration of performance during the 1970s was due to serious structural weaknesses. The oil shock of 1973 and the terms of trade losses of subsequent years (especially the early 1980s) were only part of the reason underlying the protracted slowdown in growth performance in the SSA countries. Savings and investment ratios were well below what was needed to address the pressing challenges of economic development and growth. Substantial deficits in the public sector and terms of trade losses had weakened domestic savings. [8] Moreover, investments were costly due to poor transport services, adverse taxation and other policies; also the returns to investment (as measured by the incremental capital-output ratio) were lower than in other regions.[9] Even among Africa's oil exporting countries where substantial resources were derived from higher oil prices there was little success in diversifying production and exports.[10]

Higher public investments and savings were necessary to increase expenditures for both human resource and infrastructure development. The efficiency of public investments needed to be improved. Private sector investments in agriculture and industry were not adequate to spur growth. An enabling regulatory environment and more efficient infrastructure services were required to promote private sector development. Stronger efforts were needed to boost private savings through urgently needed

[7] Variability is measured by the average deviation from the mean.
[8] Ibid.
[9] The World Bank (2000) – "Can Africa Claim the 21st Century?"
[10] Ibid.

reforms in the financial sector. Greater priority needed to be given to capacity building in both the public and the private sector.

A rethinking of the interventionist economic development strategy was triggered by the urgent need for economic recovery. From the second half of the 1970s through the 1980s an increasing number of countries began to implement far-reaching economic reforms to achieve macroeconomic stability and remove the structural distortions that resulted from official price controls and state-owned monopolies in agricultural marketing, the taxation of agricultural exports, overvalued exchange rates, the extensive reliance on restrictive import licensing and other trade and foreign exchange restrictions, and the rigid controls on interest rates and credit allocation that inhibited efficient financial intermediation. Reforms also sought to restructure and privatize public enterprises in banking as well as in other sectors to improve economic efficiency, reduce the fiscal burden of unprofitable enterprises and, most importantly, to support private sector development. From only a few countries in the early 1980s the number of SSA countries with IMF-supported programs increased sharply by the early 1990s (to cover 24 countries).

The results of the reform efforts took time to bear fruit across Sub-Saharan Africa as the pace and intensity of reforms varied widely across countries. In Sub-Saharan Africa (SSA) average annual growth rates continued to decline through the 1980s and until the mid-1990s. During this 15-year period the average annual growth rate of per capita GDP was negative as recovery began only in the second half of the1990s. In the 1980s and the early 1990s economic performance was particularly disappointing in the CFA franc zone countries of West and Central Africa where the problems associated with unsustainable fiscal and external deficits were compounded by a highly overvalued exchange rate. These countries, which had a fixed peg to the French Franc, devalued their exchange rate in August 1994 and adopted structural adjustment programs that laid the basis for their subsequent economic recovery in the latter half of the 1990s. In North Africa, where growth rates declined during the 1980s, the annual improvements in per capita GDP (less than 1.5 percent) were on average much less than the previous two decades.

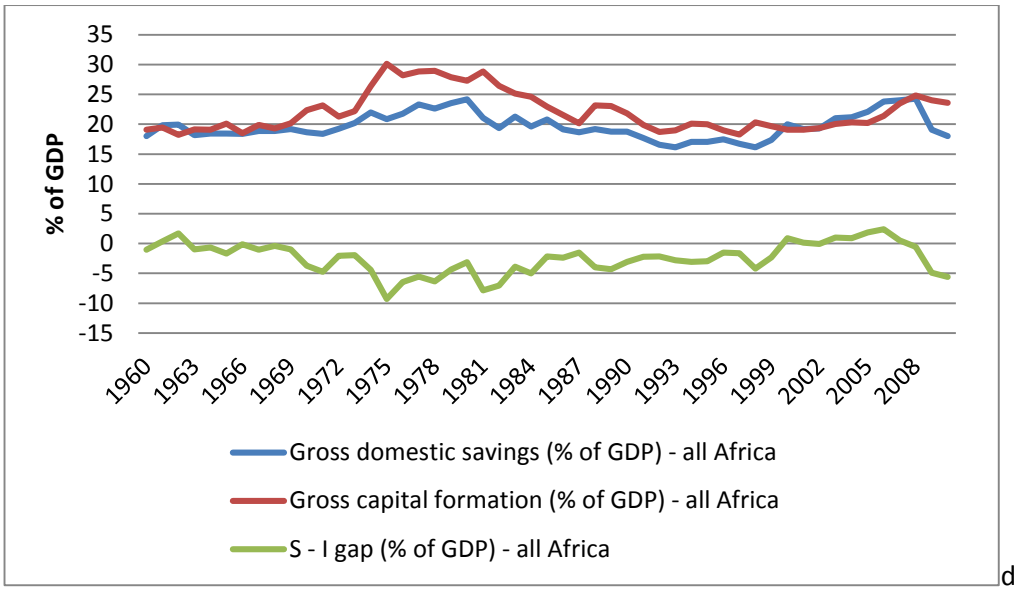
The discussion that follows indicates that throughout the economic reform process Africa faced serious macroeconomic challenges: tackling large fiscal and external current account imbalances, reducing inflationary pressures, increasing domestic savings and investment, and addressing external debt management problems. Once there was adequate progress in establishing macroeconomic stability, economic performance improved over an increasing number of countries.

Weak Savings and Investment Efforts

Africa's savings rate has remained virtually stagnant for almost four decades 1960s-1990s. The investment rate has been higher than the savings rate for most of the period under review. After a decade of stagnation in the 1960s, the investment rate increased sharply in the early 1970s but subsequently trended downward over the subsequent three decades (Figure 2.3). The financing gaps resulting from these trends were covered by aid inflows and foreign borrowing with aid flows mainly

benefitting the SSA countries. Fiscal deficits remained large and were financed by foreign aid and debt relief operations.

Figure 2.3: Ratios of Investment and Savings to GDP (%)



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Source: UNCTAD database

In SSA savings ratios remained basically low and stagnant in the 1960s and showed only a modest improvement in the 1970s. The investment rate rose in SSA through the 1960s and at a slower pace in the1970s. Thereafter, the savings and investment ratios of the SSA region trended downward during the1980s. There was no visible improvement in the investment rate (18 percent) and the savings rate (15 percent) in the 1990s, which remained well below the levels of the 1970s. The trends in savings and investment in North Africa were similar. Savings ratios remained basically low and stagnant in the 1960s and showed only a modest improvement in the 1970s. In North Africa investment ratios rose markedly in the second half of the 1970s and subsequently trended downwards through the 1980s and early 1990s, but savings ratios remained lower and showed virtually no improvement. Consequently, annual investment-savings gaps (although declining) remained large in these countries.

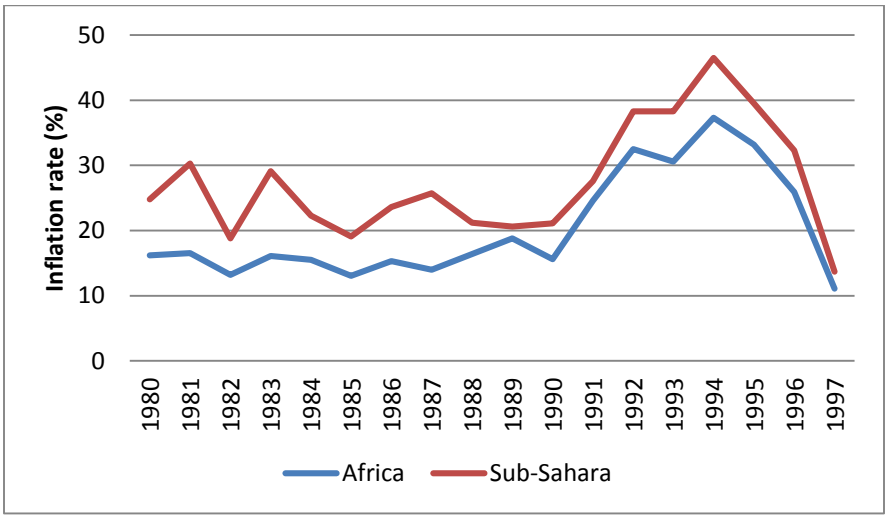
Growing Inflationary Pressures, Monetary Expansion and Exchange Rate Policies

As measured by the GDP deflator, in the 1960s annual inflation rates were relatively low in SSA (about 6 percent} and North Africa (about 2 percent).[11] However, inflation rates were markedly higher in the 1970s in both the SSA countries (13 percent) and North Africa (about 9 percent). The inflation rate accelerated further in the 1980s in the SSA region where it ranged between 20 to 30 percent. In North Africa inflation remained around 10 percent. For Africa as a whole the inflation rate was double-digit during the 1980s (in the range of 10 to 20 percent).

[11] Ibid

There was a surge in Africa's inflation rate in the first half of the 1990s followed by a steep reduction during 1995-97, again reflecting a similar trend in the SSA region (Figure 2.4). The average annual inflation rate declined in SSA in the latter half of the1990s with significant progress in reducing inflationary pressures in an increasing number of countries.[12] In North Africa, inflation rates in Algeria, Egypt and Libya declined below 10 percent in the latter part of the 1990s while Morocco and Tunisia continued to maintain their low-inflation environment.[13]

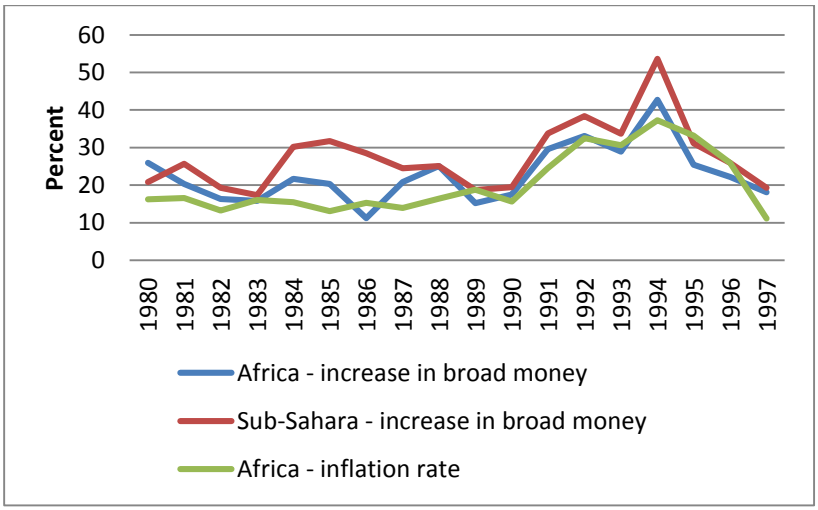
Figure 2.4: Consumer Prices Inflation Rate (%)



Source: IMF WEO database

The movements in the inflation rate reflected closely the rates of monetary expansion in Africa (Figure 2.5). In particular, both indicators moved sharply up in the early 1990s and then declined during 1995-97.

Figure 2.5: Growth rates of Broad Money and the Inflation rate (in percent)



Source: IMF WEO database

[12] International Monetary Fund (October, 2004): "Sub-Saharan Africa Regional economic Outlook."
[13] International Monetary Fund (October 1999): "World Economic Outlook."

The inflation experiences of African countries with fixed exchange rates differed from those that had more flexible exchange rate regimes. For example, inflation rates in the CFA Franc Zone countries averaged well below 10 percent during 1975-89 while double digit inflation rates were not uncommon in this period in the countries with flexible exchange rates (such as in Ghana, Sierra Leone, Uganda and Zambia). Low inflation in the CFA franc countries is the result of their special monetary and financial arrangements, which include not only a fixed exchange rate but also a high degree of openness of the external capital account and an independent common central bank. In this situation, domestic credit expansion does not lead to monetary expansion and inflationary pressures. The impact of large fiscal deficits and investment-savings imbalances is channeled through a build-up of foreign debt and/or drainage of foreign reserves; there is little or no spillover in to inflation. In countries with flexible exchange rate regimes the main cause of inflation was fiscal deficits entailing substantial monetary financing. In these cases, exchange rate devaluations can aggravate inflationary pressures by raising the cost of imports (especially of imported inputs), more so if domestic supply elasticity is low.

The inflationary impact of the 1994 CFA franc devaluation (50 percent in foreign currency terms) implemented by 14 Franc Zone countries was large for a short period following the devaluation. All the 14 countries implemented the devaluation simultaneously and quickly launched macroeconomic programs to maximize the gains from the devaluation. This explains the temporary upturn in Africa's inflation in 1994 and the subsequent drop in inflation during 1995-1997.

In other countries too, exchange rate devaluation *per se* has not always led to inflationary pressures. Where countries had large differentials between the official exchange rate and the rate in the parallel market, devaluations have tended to close this gap without significant inflationary effects when appropriately tight macroeconomic financial policies were in place. This is because domestic prices already reflected the parallel market exchange rate prior to the devaluation. The experiences of countries that moved from fixed to flexible exchange rate regimes such as Ghana, Sierra Leone, Uganda and Zambia indicate that high inflation and thriving parallel markets prevailed before the reform of their exchange rate regimes in the 1980s. Devaluations in these cases tended to align the official rate with the parallel rate and in some cases alleviated fiscal pressures by increasing government revenues. Thus these exchange regime reforms contributed little to inflationary pressures.

Many African countries implemented structural reforms of the financial sector. Central banks were granted more autonomy in conducting monetary policy. Interest rates were liberalized and credit allocation systems were phased out. Strict limits were introduced on government borrowing. The solvency of banks was improved by restructuring measures, and bank supervision and auditing practices were strengthened. Steps were also taken to shift from direct to indirect monetary policy implementation.

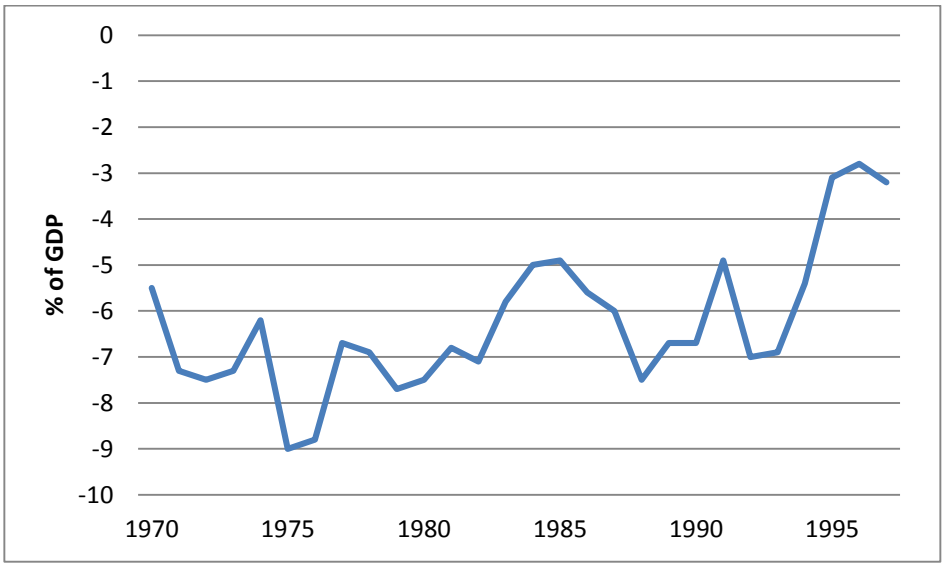
In the aftermath of the August 1994 devaluation the CFA franc countries implemented several financial sector reforms. Crop credit was included under an overall credit ceiling. Credit controls were eliminated and a new rating system for assessing creditworthiness was introduced to guide the refinancing policy of the central bank. A system of indirect monetary management was launched within the framework of a regional interbank and money market. Money market auctions and a central bank discount window

were introduced. To provide liquidity for banks a form of repurchase agreement was created. Interest rates were liberalized. Bank supervision capabilities and regulatory and prudential standards were substantially improved and their enforcement was strengthened.

Persistence of large Fiscal Deficits

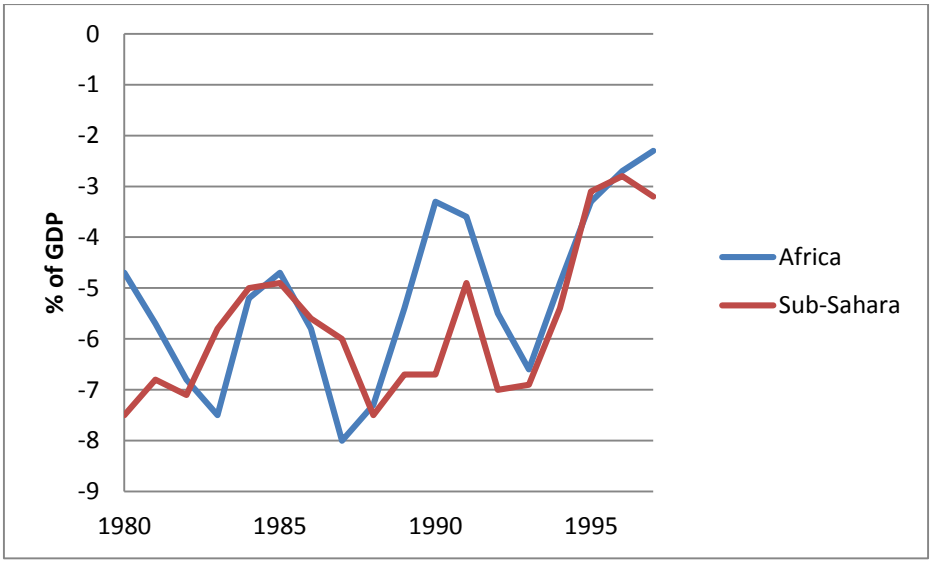
From the beginning of the 1970s to the early 1990s, Sub-Saharan Africa's fiscal deficits have fluctuated between 5 and 9 percent of GDP without a clear trend towards a narrowing of the deficit (Figure 2.6). A sharp reduction of the deficit was achieved during 1994-1997. For Africa as a whole the time profile of the overall fiscal deficit has been very similar to that of the SSA countries (Figure 2.7).

Figure 2.6: Sub-Saharan Africa: Ratio of Fiscal Deficit to GDP (in percent)



Source: IMF database

Figure 2.7: Ratio of Fiscal Deficits to GDP (%)



Source: IMF database

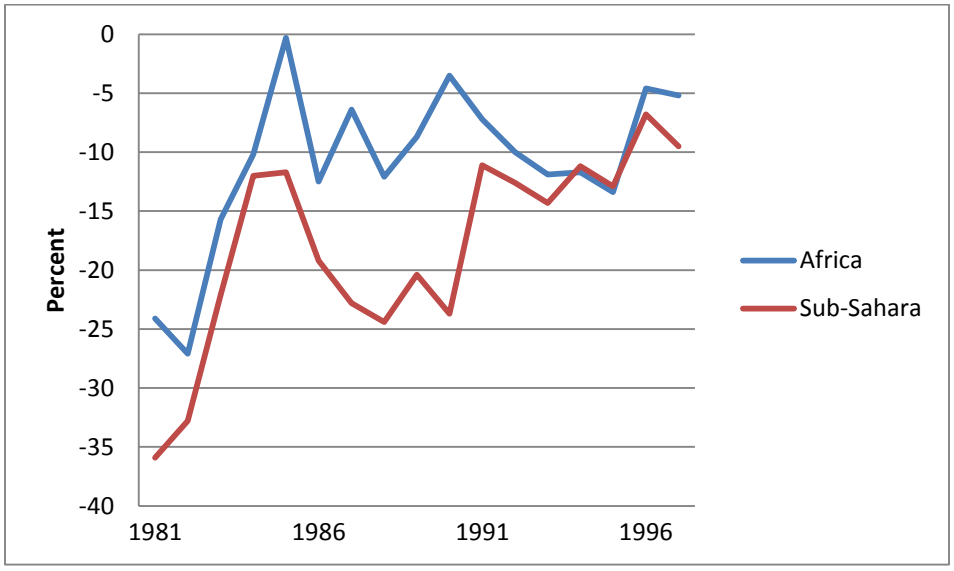
Reform efforts in the 1980s and 1990s included various fiscal measures. Public investment programming was integrated within a coherent budgetary framework and supported by improvements in project selection and public expenditure management systems. In prioritizing government expenditures more attention was given to human resource development (through emphasis on health and education) and poverty reduction objectives. Measures were implemented to restructure the public enterprise sector, privatize some of these enterprises, and reduce this sector's reliance on budgetary subsidies and domestic bank credit. A number of countries (The Gambia, Ghana, Lesotho and Mali) took steps to reduce the civil service wage bill as a percentage of GDP and improve the wage structure.

On the revenue side, steps were taken to improve tax administration, broaden the tax base and rationalize tax structures. Efforts were made to reduce reliance on taxation of foreign trade and shift towards taxes on domestic transactions and sources of domestic income. In The Gambia, Kenya, Madagascar, Niger, Senegal, Tanzania and Togo, reforms of import tariffs included reducing the number and the highest level of the duty, reduction of exemptions and the conversion of specific to ad valorem taxes. In some cases, broad-based sales taxes replaced a multiplicity of sales tax rates and several countries (Kenya, Malawi, Mali, Niger and Senegal) took steps to introduce value-added taxes. Personal income taxation was simplified in some countries (Kenya, Madagascar, Malawi and Tanzania) by lowering the highest marginal rates, reducing the number of rates, reducing exemptions and deductions, and shifting to improved definitions of income.

Prolonged Deficits in the External Current Account of the Balance of Payments

As a result of the fiscal imbalances, Sub-Saharan Africa's external current account deficits were substantial as a proportion of exports throughout the 1970s and the 1980s (averaging about 23 percent); these deficits began declining around the mid-1990s (Figure 2.8). For Africa as a whole the external deficits were smaller as a ratio of exports because of the lower ratios in North Africa.

Figure 2.8: Ratio of the External Current Account Deficit to Exports of Goods and Services (in percent)

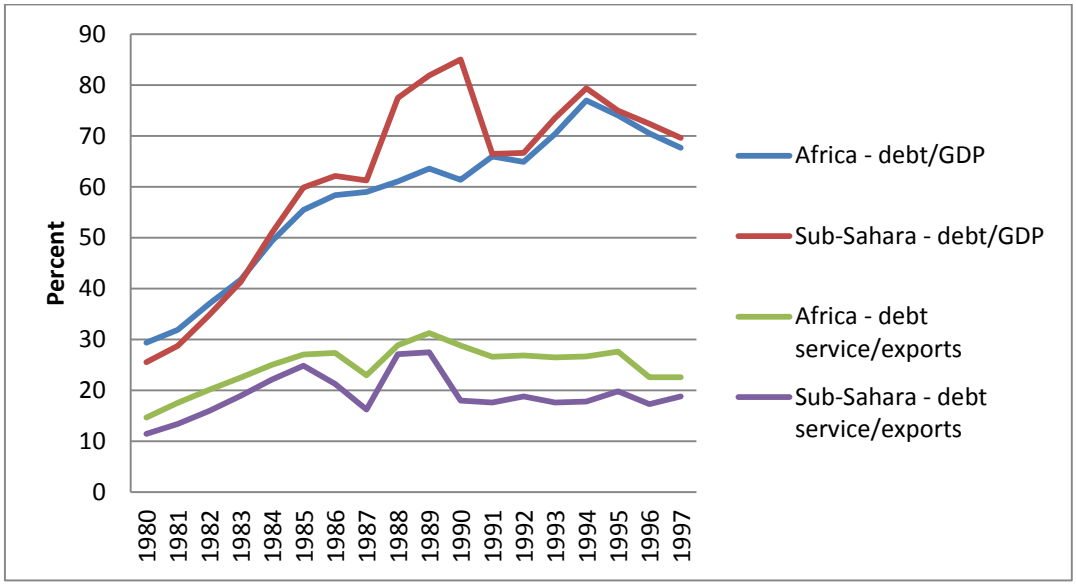


Source: IMF/WEO database

A growing debt problem and repeated recourse to debt relief

The large deficits in the fiscal and external current accounts were financed by substantial foreign borrowing in Sub-Saharan Africa. Consequently, Sub-Saharan Africa's external debt to GDP ratio increased from 24.9 percent in 1973 to about 70 percent of GDP by the mid-1990s (Figure 2.9). The external debt service ratio to exports for the SSA region rose from 8 percent in 1974 to about 20 percent by the mid-1990s. For Africa as a whole these ratios followed similar trends.

Figure 2.9: External Debt Indicators (in percent)

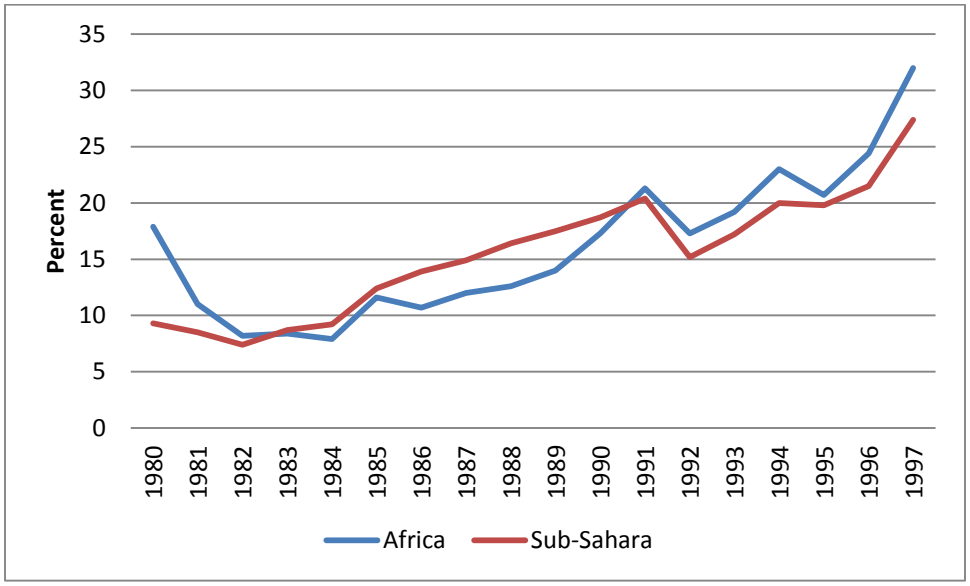


Source: IMF/WEO database

Bilateral official creditors sought to alleviate Africa's debt burden through repeated rescheduling operations on increasingly concessional terms, mainly (but not exclusively) for the low-income countries. In 1990 bilateral official creditors granting debt relief through the Paris Club introduced its Houston terms for the benefit of eligible middle-income countries. Houston terms provided for longer grace and repayment periods than the traditional classic terms which rescheduled debt at appropriate market rates. In December 1994, the Paris Club introduced its Naples terms under which eligible countries could get 50 percent to 67 percent of their eligible debt cancelled. In 1996 the Highly Indebted Poor Countries (HIPC) initiative was launched by the IMF and the World Bank to provide broader debt relief to heavily-indebted poor countries with severe debt burdens and to strengthen the links between debt relief, poverty reduction and social policies. The HIPCs include 30 African Countries. The Paris Club created its Cologne terms in June 1999 for the benefit of countries that are eligible for assistance under the HIPC initiative. Cologne terms allow for higher levels of debt cancellation than Naples terms (90 percent of eligible debts). Finally, the Multilateral Debt Relief Initiative (MDRI) was launched in 2005 to supplement the HIPC initiative and help speed up progress toward the UN's Millennium Development Goals (MDGs). The MDRI provides countries completing the HIPC process with 100 percent debt relief on eligible debts owed to the IMF, the World Bank and the African Development Fund (ADF).

As a result of substantial foreign aid inflows and debt relief from bilateral and official development partners, African countries were able to not only finance their fiscal and external imbalances but also gradually build up a much-needed (albeit modest) cushion of foreign reserves. In SSA reserves increased from less than one month of imports in 1980 to slightly more than 2 months of imports (Figure 2.10).

Figure 2.10: Ratio of Foreign Reserves to Imports of Goods and Services



Source: IMF/WEO database

The contribution of reform efforts to economic recovery

Success in implementing reforms differed widely across countries as well as across the various areas of policy reform. Assessments of Africa's progress in implementing reforms and achieving the intended economic results were periodically undertaken by both the World Bank and IMF staff as well as by development economists in academic institutions. A World Bank study examined the experience of twenty- nine countries and reported that the six countries with the most improvement in macroeconomic policies between 1981-86 and 1987-91 achieved the strongest improvement in economic performance.[14] These countries achieved a strong recovery in the growth rate of per capita GDP along with substantial increases in their industrial and export growth rates. Agricultural growth rates also accelerated in countries that reduced the tax burden on farmers. While noting that reforms were uneven across countries, the report concluded that the countries studied had in general been more successful in improving their macroeconomic, trade and agricultural policies than reforming their public and financial sectors. A later IMF staff study reviewed the adjustment experiences of two groups of countries during 1986-93, namely countries that had implemented broadly appropriate policies under their programs for at least three years (the sustained adjusters) and those that were less successful in sustaining the implementation of their programs (weak adjusters). It reported that the countries classified as sustained adjusters improved their external competitiveness and implemented structural reforms (to cushion the impact of terms of trade losses) and performed better than the countries

[14] World Bank (1993) – "Adjustment in Africa: Reforms, Results and the Road Ahead."

classified as weak adjusters. The group of strong adjusters achieved positive and higher rates of per capita real GDP growth, higher rates of government savings and investment growth. By contrast the weak adjusters experienced negative per capita income growth and declines in domestic savings and investment in both the public and private sectors.[15]

As a growing number of countries implemented reform programs, often over extended periods, evidence of improved economic performance emerged gradually across an increasing number of countries. An IMF staff study found that the economic performance of SSA countries had improved markedly between the periods 1981-84 and 1995-97. [16] It noted that after recording negative growth rates of per capita GDP through most of the 1980s and the five-year period 1990-94, the growth rate of per capita real GDP rose to 1.2 percent during 1995-97. In the latter period growth rates picked up in 37 of the sample of 46 countries examined in the study. Compared with the number of countries that had achieved increases in per capita GDP during 1990-94 (16 countries), there were more than twice as many countries experiencing positive growth rates during 1995-97. This overall turnaround in the economic performance of SSA countries masks the significantly weaker growth performance in countries affected by past or continuing political turmoil. The growth rates in these conflict affected-countries (including in Burundi, Comoros, the Democratic Republic of the Congo, Rwanda, Sierra Leone, Swaziland, and Zambia) remained negative or declined.

B. Strengthening of macroeconomic performance since the mid-1990s

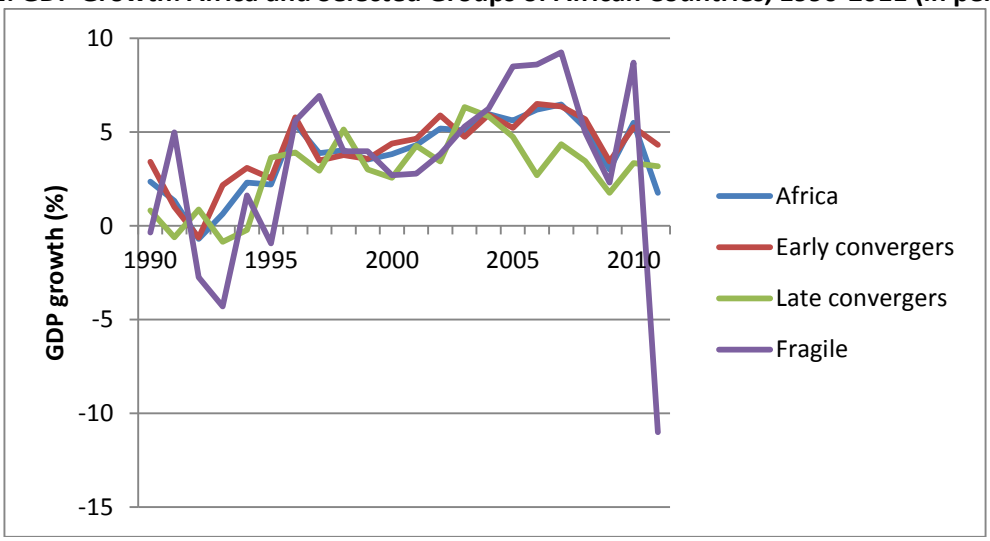
1. Growth and Inflation

Africa's macroeconomic performance improved markedly over the last decade and a half, not only in terms of higher growth rates but also in terms of important gains in reducing inflation and thus in macroeconomic stability. Africa's GDP growth increased considerably from the early- to mid-1990s, and has averaged around 4.6 percent a year since then (Figure 2.11). Moreover, despite the weak global economic environment that followed the onset of the global financial crisis of 2008-09, annual growth averaged of 4.8 percent during 2007-11. This performance is remarkable, even it is somewhat lower than in the previous few years. Most countries shared in this solid expansion.

[15] International Monetary Fund (IMF, 1995) Occasional Paper 118: "Sub-Saharan Africa – Growth, Savings and Investment, 1986-93.

[16] IMF Working Paper 99/51 (1999): "Adjustment and Growth in Sub-Saharan Africa."

Figure 2.11: GDP Growth: Africa and Selected Groups of African Countries, 1990-2011 (in percent)



Source: Centennial Group International

Note: The sharp drop in the growth rate of fragile countries mainly reflects the major decline in GDP experienced by Libya.

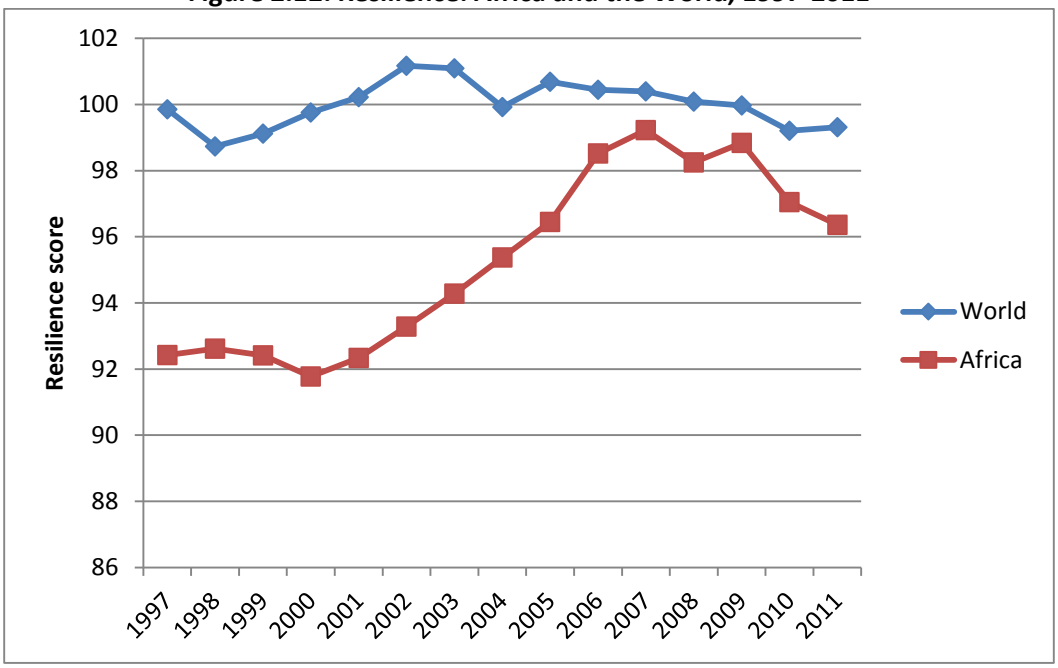
The improvement in economic performance is—to a considerable extent--the result of important policy efforts, including the wide-ranging reforms implemented by many countries prior to and in the context of the HIPC and MDRI Initiatives, which helped lower fiscal deficits and public debt to sustainable levels.[17] These reforms, which were also carried out by a number of non-HIPC eligible countries, were instrumental in introducing dynamism to the economies, as evidenced by higher economic growth and a remarkable strengthening in resiliency (Figure 2.12).[18] [19] Africa's growth performance also benefited from a considerable improvement in its terms of trade in recent years, and the associated increase in production of natural resources in several countries.

[17] While there were significant concerns about the adverse effects resulting form donors reducing their assistance after having provided debt relief to a country, this problem did not materialize on average. ODA flows to Africa (in 2010 prices and exchange rates) actually increased from an average of US$30.7 billion a year during 1990-99 to US$37.4 billion a year during 2000-09 and US$48.1 billion a year during 2010/11. See OECD, Development Aid at a Glance, Statistics by Region, Africa, 2013.

[18] In the aftermath of the global financial crisis, Sub-Saharan Africa's GDP growth fell to 1.6 percent in 2009 but it rebounded to 4.6 percent in 2011, reflecting the strengthening in resiliency. The focus here on Sub-Saharan Africa is an attempt to isolate the improvement in the region's resilience from the adverse economic impact on some Northern African countries associated with the "Arab Spring".

[19] Boorman, Jack et al, The Centennial Resilience Index: Measuring Countries' Resilience to Shock, February 2013. The index provides a measure of the capacity of an economy to cope with and bounce back after having been hit by a shock. The key components of the index are Fiscal and Monetary Policy Soundness, Government Effectiveness, Overall Governance, Bank Soundness, Export Diversity and Independence, External Robustness, Private Sector Debt, and International Reserves. In this study, the average index for the 130 countries under review is set to 100.

Figure 2.12: Resilience: Africa and the World, 1997-2011



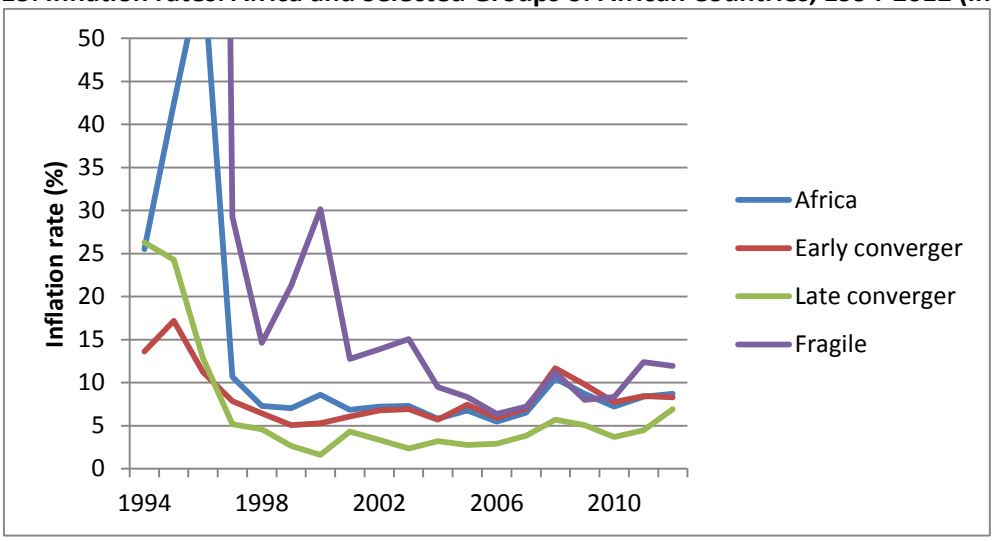
Source: Centennial Group International

Africa's inflation rate dropped markedly during the last decade and a half, even if it still remains higher than that of the advanced countries and other regions (Figure 2.13).[20] The relative increase in inflation since 2007 most likely reflects rising food prices and the considerable incidence that food has in Africa's consumption basket. What is remarkable is the major improvement among the fragile countries,[21] as their inflation rate approached the average for the region by the late 1990s. Also noteworthy is the decline in inflation among the late convergers, from about 25 percent in the mid 1990s to low single digits during most of the period under review.

[20] The decline in inflation from the mid-1990s in a number of countries reflects the tapering off of the impact of the large devaluation of the CFA Franc in 1994.

[21] For a list of the fragile African countries, see Appendix 1.

Figure 2.13: Inflation rates: Africa and Selected Groups of African Countries, 1994-2012 (in percent)



Source: Centennial Group International

It should be noted, however, that in 2011, the Sub-Saharan countries with conventional exchange rate pegs recorded an inflation rate of 3.6 percent, whereas those without such a peg recorded an inflation rate of 10.4 percent.[22] Moreover, inflation in the Sub-Saharan oil importing countries (excluding South Africa) was 13.2 percent, reflecting the jump in world oil prices.

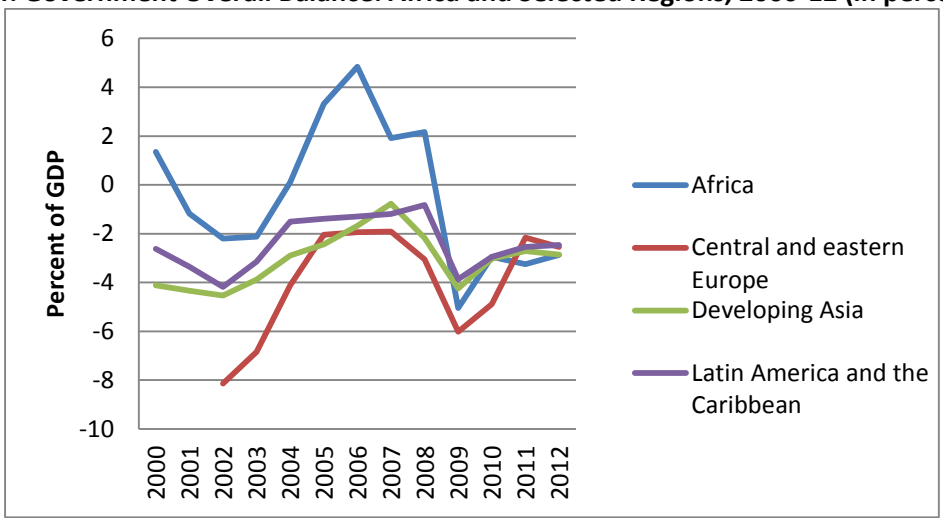
Many African countries have improved considerably their monetary policy management over the last decade and a half. Most of the countries without a conventional exchange rate peg have introduced indirect instruments to control monetary aggregates, and some of these countries have adopted inflation targeting frameworks. Those with exchange rate pegs have kept a prudent credit policy. Many countries have increased the autonomy of their central banks, and thereby enhanced its capacity to control inflation. Nevertheless, after important efforts, progress in containing inflation rates has been limited in recent years. As mentioned above, inflation has been relatively high, suggesting that monetary policies may need to be strengthened, even if part of the recent inflationary developments reflect the impact of higher food and fuel prices. Monetary authorities need to prevent these inflation rates from becoming entrenched.

2. Public finances

Fiscal Policy in Africa, as measured by the government overall balance, has been prudent during the last decade, showing significant surpluses in the period 2004-08 (largely accounted for by the fragile and late converger countries) that turned into small deficits in the aftermath of the global financial crisis of 2008-09. While these deficits have been largely similar to those prevailing in other regions, Figure 2.14 shows that Africa's public finances were more severely affected by the crisis than the other regions. In particular, government revenue fell considerably as government spending remained relatively stable (Figures 2.15 and 2.16).

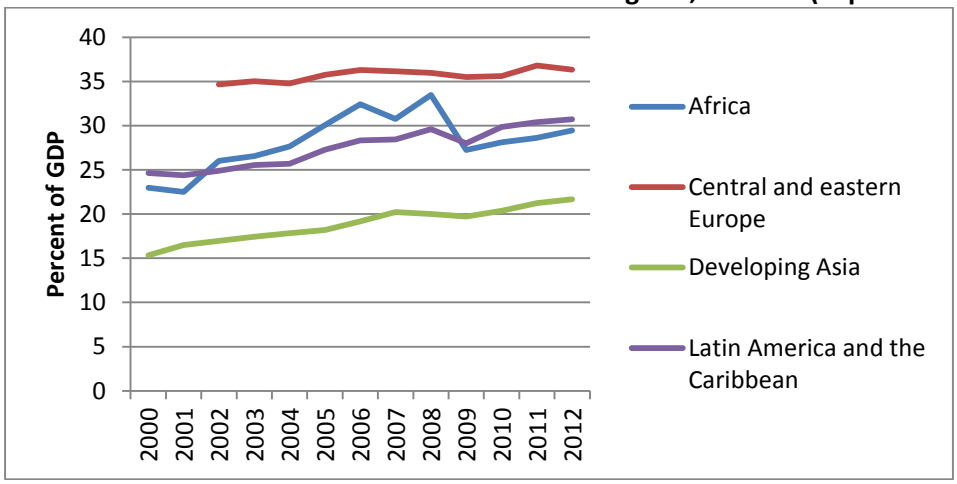
[22] IMF, Regional Economic Outlook, Sub-Saharan Africa, October 2012.

Figure 2.14: Government Overall Balance: Africa and Selected Regions, 2000-12 (in percent of GDP



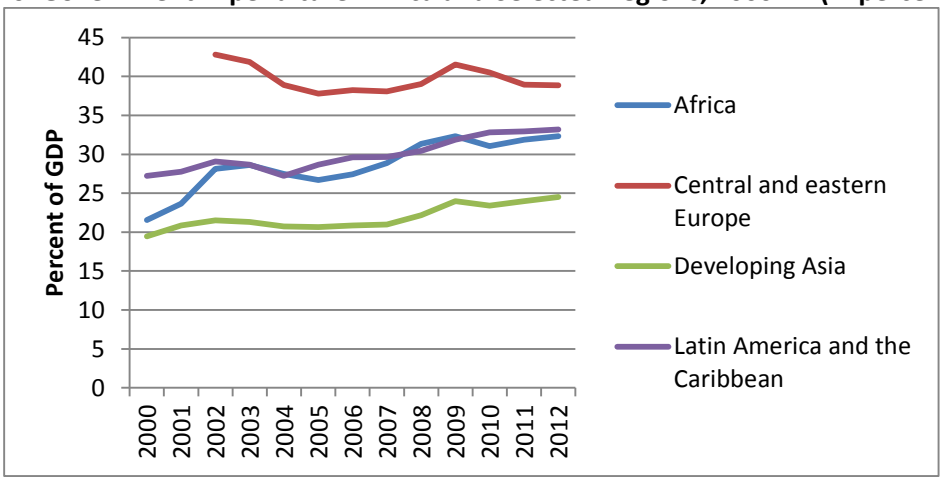
Source: Centennial Group International

Figure 2.15: Government Revenue: Africa and Selected Regions, 2000-12 (in percent of GDP)



Source: Centennial Group International

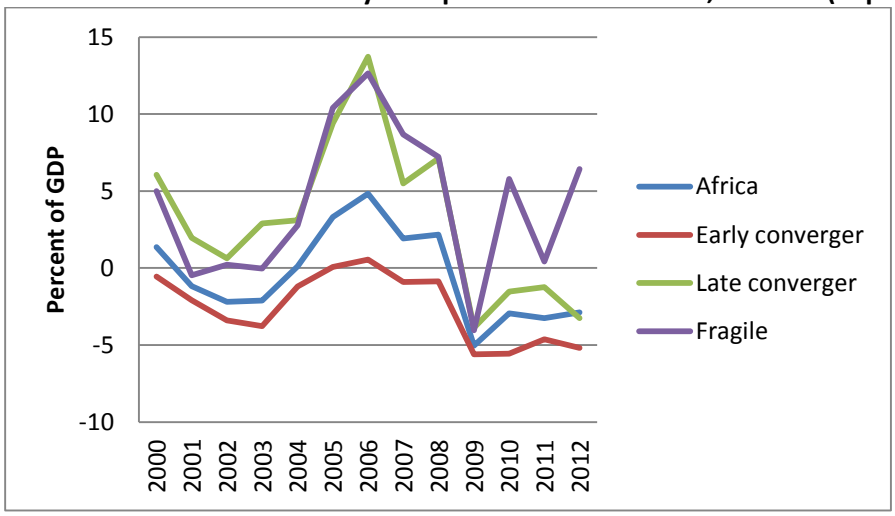
Figure 2.16: Government Expenditure: Africa and Selected Regions, 2000-12 (in percent of GDP)



Source: Centennial Group International

Not surprisingly, the region's aggregates mask large differences between the various groups of countries. As noted, both the fragile and late convergers showed large overall surpluses during 2004-08 (Figure 2.17). But the surpluses of the latter group turned into small deficit in the aftermath of the global crisis; the overall balances of the fragile countries fluctuated significantly, but remained in surplus. The overall balances of the group of early converger countries showed a similar pattern, but were in deficit virtually the whole period, weakening to around 5 percent of GDP since 2009.

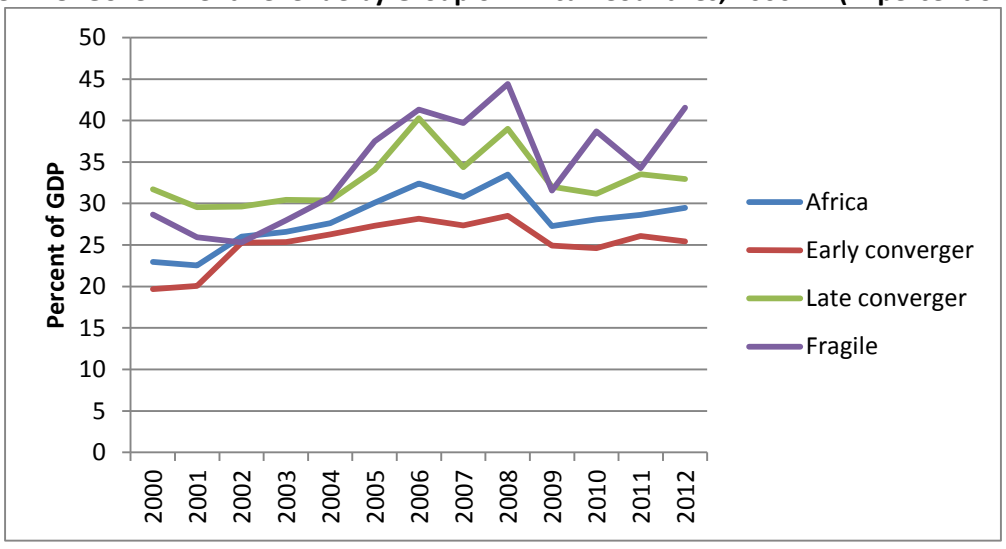
Figure 2.17: Government Overall Balance by Group of African Countries, 2000-12 (in percent of GDP)



Source: Centennial Group International

This performance reflects a considerable increase in government revenue since the early 2000s (Figure 2.18), mainly attributable to the groups of fragile and late converger countries, as revenue of the early converger group remained relatively flat. This increase may be related to the large proportion of resource exporters among these countries.

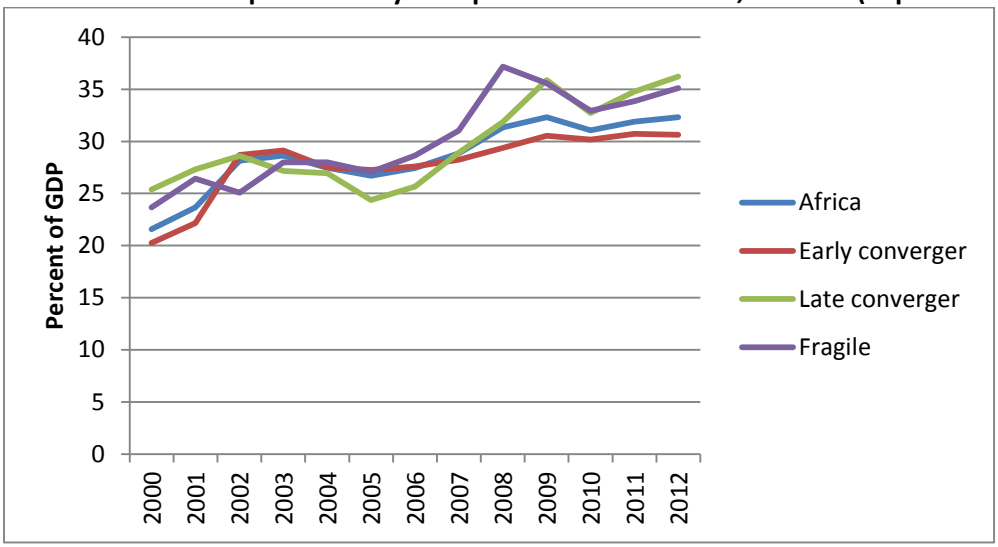
Figure 2.18: Government Revenue by Group of African Countries, 2000-12 (in percent of GDP)



Source: Centennial Group International

Government spending also rose markedly in the early 2000s in all the subgroups (Figure 2.19). Although all groups continued to increase government spending, the increases among the fragile and late converger countries have been significantly larger, indicating a remarkable correlation between increases in government revenue and expenditure. Given the large proportion of resource-rich countries in these groups, such a pro-cyclical behavior raises concern about the sustainability of macroeconomic stability, especially in the event of a weakening in the terms of trade.[23]

Figure 2.19: Government Expenditure by Group of African Countries, 2000-12 (in percent of GDP)



Source: Centennial Group International

Moreover, as shown in Figure 2.16, Africa's government expenditure is quite similar to that of Latin America and the Caribbean but considerably higher than that of fast growing Asia. In view of the need to increase expenditures in infrastructure and human capital, African policy makers will need to re-balance the composition of government spending by containing the growth of other current expenditure and avoid rising total government expenditure excessively. Otherwise, the tax burden on the private sector will be too heavy and thus affect adversely economic growth. Indeed, Africa's government revenue ratio to GDP, while similar to that of Latin America and the Caribbean, is considerably higher than that in fast growing Asia.

Despite the overall positive performance, many African countries show enormous infrastructure gaps, weak human development indicators, and poor income distribution. Fiscal policies should play a key role in improving these conditions. To this end, there is a need to address structural weaknesses on the revenue and expenditure sides, and thereby prevent them from constraining growth potential.

3. Public debt

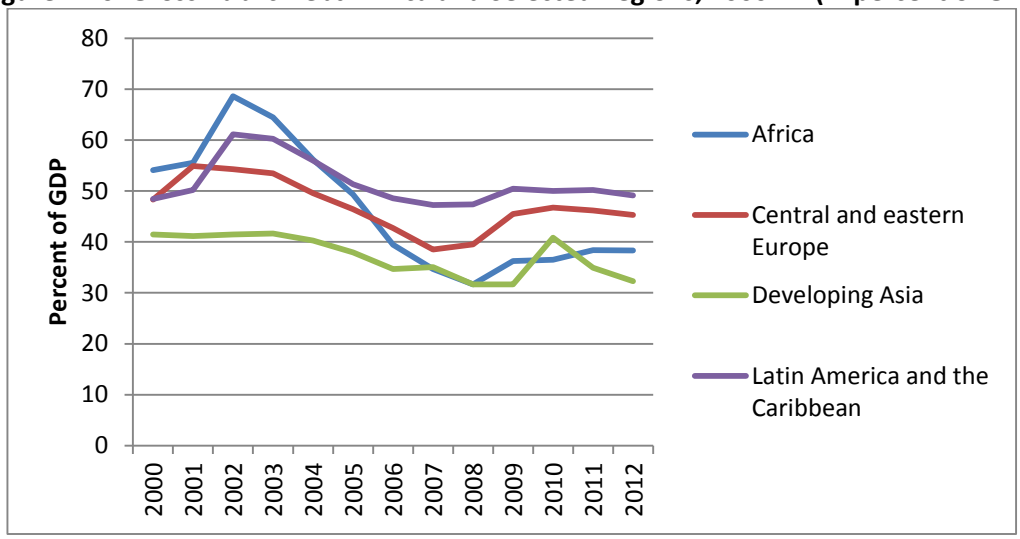
Africa's public debt was reduced considerably as a ratio to GDP in the context of the HIPC and MDRI Initiatives, as shown in Figure 2.20, thereby making the debt burden sustainable. While the public debt ratio bottomed down in 2008, it increased significantly since then, owing to the fiscal stimulus packages

[23] Loser, Claudio, Commodity Terms of Trade in Emerging Markets: A Fragile Blessing (forthcoming in Global Journal of Emerging Market Economies).

adopted following the onset of the global financial crisis. This increase is largely attributable to the group of early converger countries (Figure 2.21). While all other regions also show an increase in 2009 or 2010, for similar reasons, their debt ratios stabilized immediately thereafter and—in Developing Asia--even returned to virtually the previous lower level by 2012.

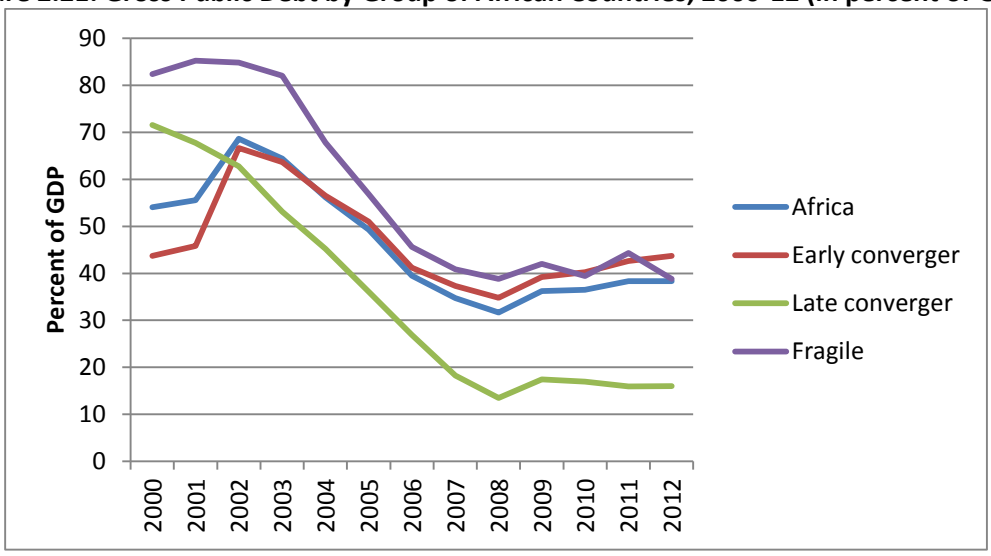
Given the depressed economic situation of Europe—a continent that accounts for a large share of Africa's exports—it is understandable that the fiscal stimulus measures are difficult to unwind without affecting economic activity, but African countries need carefully to rebuild their fiscal space and resilience and ensure debt sustainability.

Figure 2.20: Gross Public Debt: Africa and Selected Regions, 2000-12 (in percent of GDP)



Source: Centennial Group International

Figure 2.21: Gross Public Debt by Group of African Countries, 2000-12 (in percent of GDP)

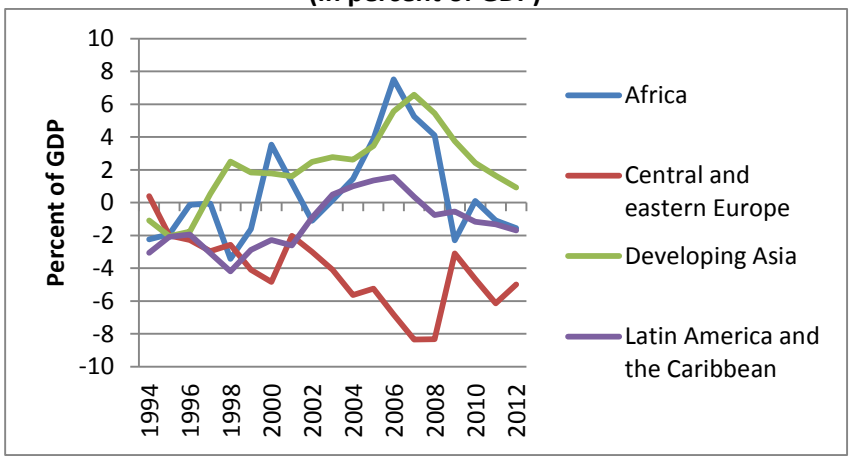


Source: Centennial Group International

4. Balance of Payments

Mirroring the strengthened macroeconomic policies of the last decade and a half, as well as the contribution of the improved terms of trade, Africa's external current account showed large surpluses until 2008, i.e., the onset of the global financial crisis. While the current account balances turned into small, sustainable deficits, they have been more than financed by FDI and portfolio inflows. Developing Asia and Latin America and the Caribbean show similar trends. By contrast Central and Eastern Europe show the reverse trends as easy access to external borrowing led to a boom of consumption that was reversed in the aftermath of the global crisis (Figure 2.22).

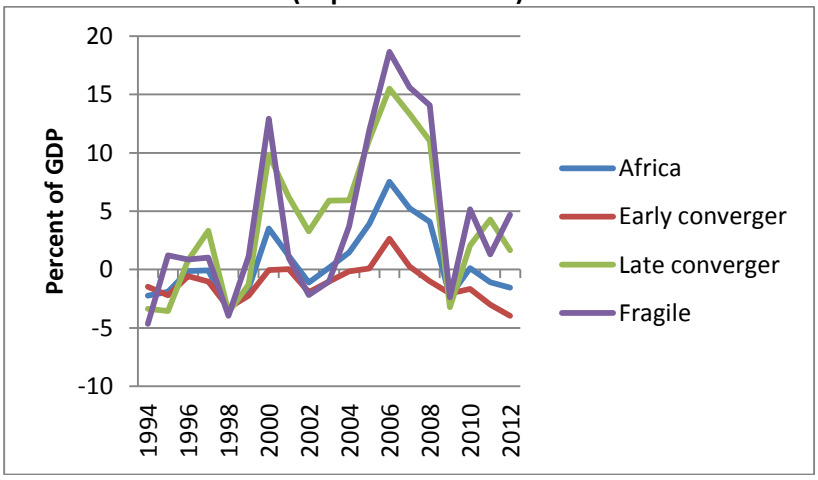
Figure 2.22: External Current Account Balance: Africa and Selected Regions, 1994-2012 (in percent of GDP)



Source: Centennial Group International

The trends for the groups of late converger and fragile countries are considerably more pronounced (most likely reflecting a higher incidence of the gains in terms of trade). The group of early converger countries also shows a strengthening of the current account balance until 2006 and steady decline thereafter; although their deficit does not raise major concern, further declines may be worrisome (Figure 2.23).

Figure 2.23: External Current Account Balance by Group of African Countries, 1994-2012 (in percent of GDP)



Source: Centennial Group International

III. Investment and Savings Needs for Sustained High Growth

A. Growth, Investment and Savings Recent Performance

1. Growth

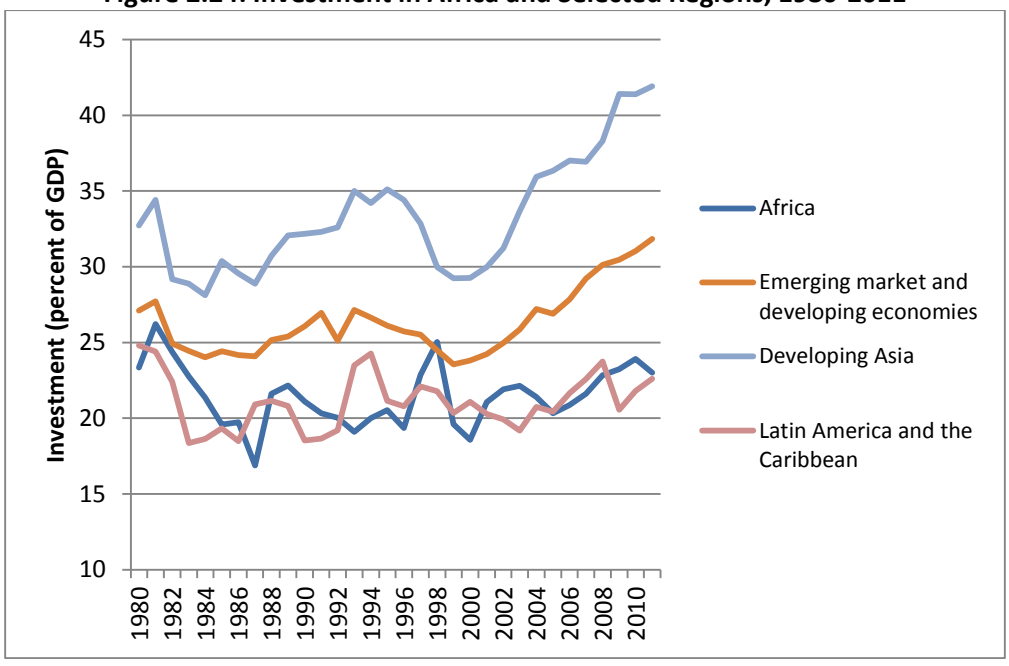
The growth path for the group of early converger countries has been very similar to that of the continent as a whole, although with less volatility in recent years (see Figure 2.11). This volatility is greatly influenced by the high instability of the fragile countries. Growth performance of the group of late converger countries is significantly weaker than the other groups, with somewhat lower volatility than the fragile group. More importantly and of greater concern is that the group of late convergers shows a declining trend in GDP growth since the early 2000s.

While Africa is expected to maintain a moderate rate of growth over the next few years, including as a result of new natural resource production in several countries, the weaker performance of recent years also suggests that the important efforts noted above need to be reinforced for GDP growth to accelerate, especially by creating the conditions for Africa's low investment and savings ratios to rise markedly.

2. Investment ratios

Africa's investment as a ratio to GDP is too low to sustain high rates of real GDP growth for long. Having fluctuated around 20 percent during 1980-2011, it has risen to about 23 percent of GDP since 2007. While these ratios are quite similar to those of Latin America and the Caribbean, they are significantly lower than the average for emerging market and developing countries, and markedly lower than those of the fast growing countries in developing Asia, as shown in Figure 2.24.

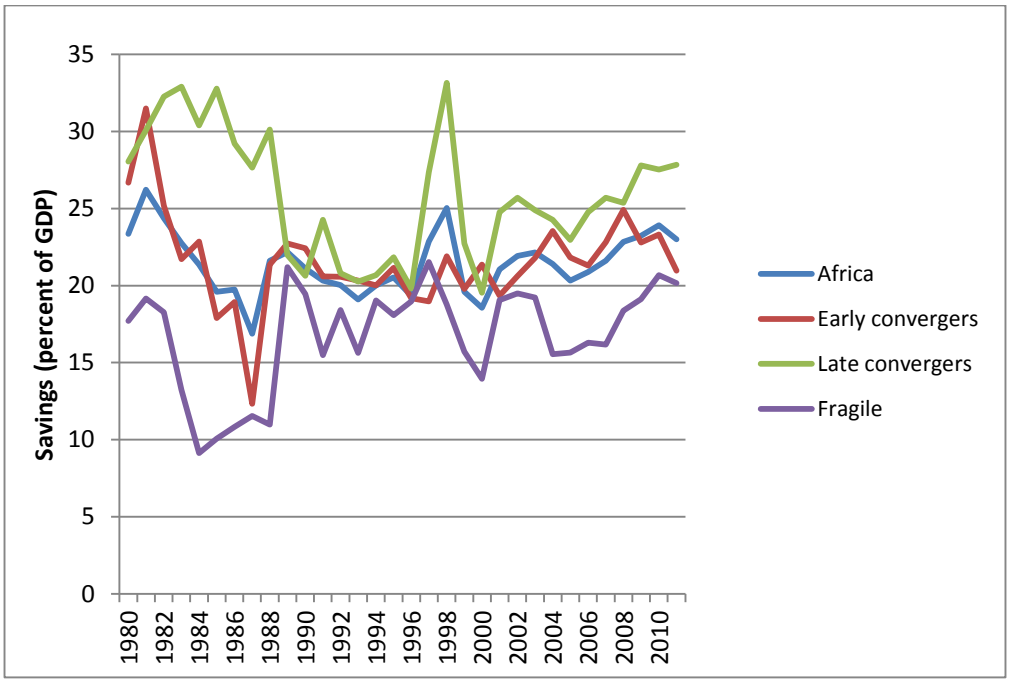
Figure 2.24: Investment in Africa and Selected Regions, 1980-2011



Source: Centennial Group International

While the investment ratios of the group of early converger countries have been quite similar to those of the continent, the decline in the ratio of these countries over the last few years is disturbing, and contrasts with the increases observed in the other two groups. The decline may reflect a drop in FDI associated with the Euro-zone crisis. While the investment ratios for the group of fragile countries have been volatile and lower than the average during the period under review, the considerable increase since the early 2000s is remarkable. By contrast, the investment ratios for the late convergers, while as volatile, have been significantly higher than the average and show a major pick up since 2000. Perhaps the higher ratios reflect the high proportion of resource exporting countries in this group, and the capital-intensive nature of natural-resource production.[24]

Figure 2.25: Investment in Africa and Selected Groups of African Countries, 1980-2011



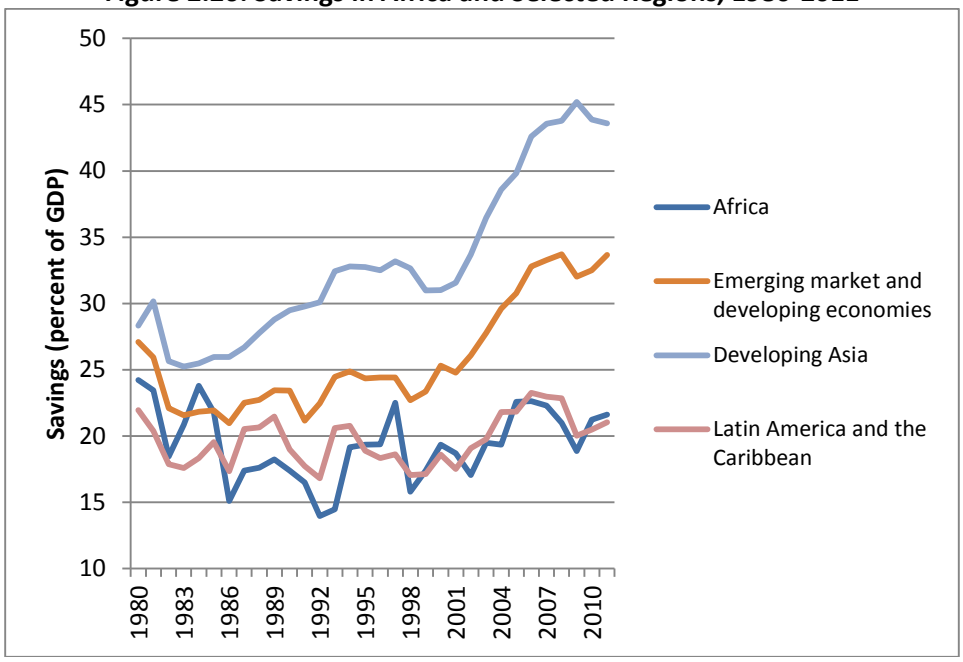
Source: Centennial Group International

3. Savings ratios

Like in the case of investment, Africa's savings ratio to GDP is also too low and compares poorly with those of other regions (except for Latin America and the Caribbean) and particularly the fast growing countries, as shown in Figure 2.26. It averaged well below 20 percent of GDP during 1980-2011; although it rose steadily from 2001 to about 23 percent in 2006-07, it declined to about 20 percent in recent years. This decline is striking given the income gains arising from the significant improvements in terms of trade.

[24] It is interesting to note that investment ratios in the North African countries are markedly higher than those in the Sub-Saharan countries, but real GDP growth rates are considerably lower. As this suggests a higher capital-output ratio (i.e., lower productivity of capital) in the North African countries than in the Sub-Saharan countries, the former countries will need to raise their investment ratios well above the average for the continent.

Figure 2.26: Savings in Africa and Selected Regions, 1980-2011

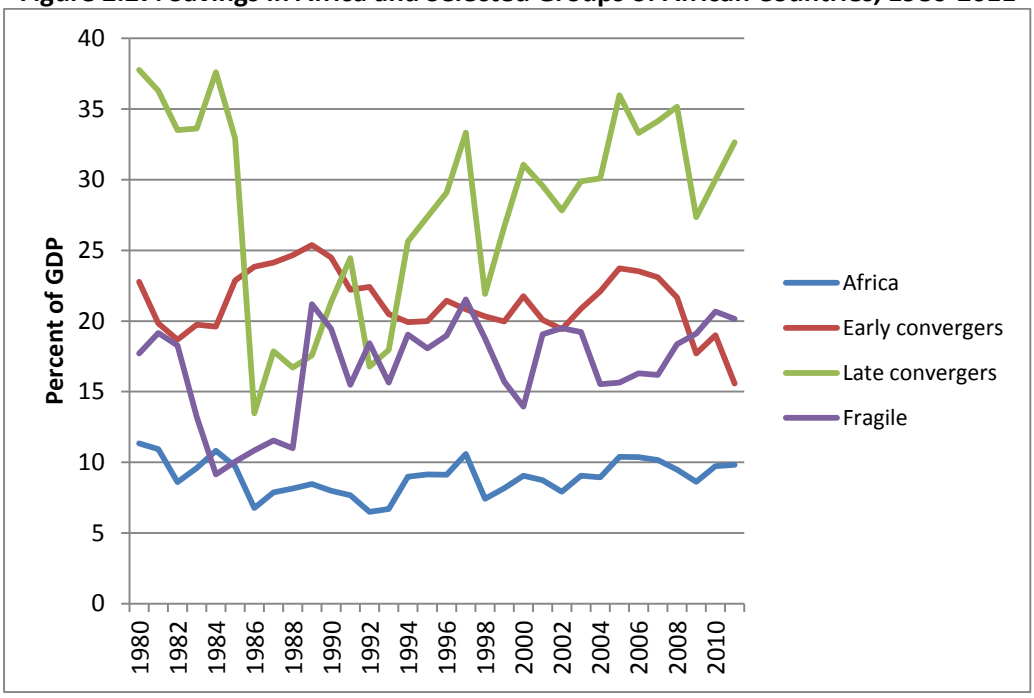


Source: Centennial Group International

The regional averages mask very large disparities between African countries; for instance, about half of the Sub-Saharan countries have currently a savings ratio of less than 15 percent of GDP.[25] Moreover, Figure 2.27 shows that the group of early converger countries has had higher savings ratios than the average for the continent as a whole for most of the period under review, but has experienced a sharp deterioration starting in 2005 and surprisingly falling below that average in recent years. The savings ratios of group of late convergers have experienced wide fluctuations, but their levels are considerably higher than the average for the continent. Perhaps this reflects the high proportion of resource exporting countries in this group, and the size and volatility of the rents obtained from such exports. As would be expected, and like in the case of the investment ratios, the group of fragile countries has lower savings ratios than the other groups, but the recent increase to just below the average for the continent is noteworthy. The latter may reflect increased rents from exports of natural resources.

[25] IMF, Africa Regional Economic Outlook, October 2012.

Figure 2.27: Savings in Africa and Selected Groups of African Countries, 1980-2011



Source: Centennial Group International

B. Policy Recommendations to Achieve Higher Investment and Savings Ratios

The low investment and savings ratios raise concern about the sustainability of Africa's growth prospects. Thus, there is a need to create the conditions for Africa's low investment and savings ratios to rise markedly. The following sections propose a non-exhaustive list of needed steps and policies.

1. Investment

To achieve the goals of the vision for Africa in 2050, particularly sustaining a GDP growth rate of 6.5 percent a year as in the convergence scenario of that study, Africa will need to raise its investment to an average of about 30 percent of GDP.[26] Of course, a number of African countries, which already have high investment to GDP ratios--especially the capital-intensive natural resource producing countries--will need to raise their investment ratios well above this figure. The increase in investment will help close the existing wide infrastructure gap and build over time an infrastructure that supports the targeted rate of GDP growth. Moreover, the investment ratio of those countries that also need to invest in closing very large gaps in housing and the associated infrastructure (water, sanitation, etc) will also need to increase above the 30 percent ratio.

It is expected that the new, higher investment would be more productive as it would bring in new technology. This, together with the policies proposed in the Africa 2050 study--especially regarding education and health--will raise Total Factor Productivity (TFP) growth and generate considerable

[26] Such a ratio will still be lower than the average for the emerging market and developing countries (see Chart 24). The ratio is based on the average ICOR of 4.8 recorded during 2007-11 and a TFP growth of 1.6 percent a year. The average investment ratio envisaged in the growth model used for the Africa 2050 study is 30.4 percent of GDP.

employment opportunities. As TFP growth is expected to increase over time--as a consequence of those policies--the investment ratio could decline somewhat without impacting adversely on GDP growth.

While an investment ratio of 30 percent of GDP is achievable, important efforts are needed to make it a reality. These efforts are mutually reinforcing and create a virtuous cycle; they aim at developing an environment that establishes the basis for sustainable high economic growth. They include:

1. The implementation, or continued implementation, of a sound and stable macroeconomic policy framework that allows both the government and the private sector to plan ahead and increase investment. Moreover, the framework should generate mutual trust and confidence in economic policies. This would enable the private sector (domestic and foreign) to play a key role as an engine of growth. An important aspect of the policy framework is a stable and efficient tax regime (see below).
2. Higher public investment also to crowd in private investment. Poor infrastructure (especially in power, water, communication, transportation and logistics) is one of the greatest constraints on economic growth, and especially because it leads to high costs and loss of productivity.[27] Thus, policy makers need to re-balance government expenditure towards much higher public investment. This will help crowd-in private sector investment (as a consequence of the complementarity between public and private investment) and lead to a more dynamic and growing economies. Moreover, given the limited resources available to governments, the re-balancing effort needs to be supplemented by the adoption of a (or strengthening of the existing) legal framework that encourages (domestic and foreign) private sector participation in enhancing infrastructure, through PPPs and other such arrangements.
3. Development of constructive and collaborative relations between the state and the private sector. This includes a reduction in the cost of doing business through the establishment of a business environment in which economic agents are not constrained by red tape and unnecessary regulations, and by poor public services. Regulatory certainty and institutional reforms that enhance governance and the rule of law are critical to promote a dynamic private sector.[28] They also need to improve the state's efficiency, effectiveness and responsiveness, by professionalizing and upgrading the competence of the public service, and strengthening accountability. In such a context, the private sector should respond by building a more competitive economy.
4. The build-up of a well qualified labor force that is able to adopt and adapt, and eventually develop new technologies associated with new investments. This will involve enhancing the quality of and access to education, as well as training. It may need to be supported by encouraging immigration of professionals.

[27] Fujita et al (forthcoming), Policy Challenges for Infrastructure Development in Africa – The Way Forward for Japan's Official Development Assistance (ODA). In Chapter: JICA TICAD Report (tentative).

[28] In the case of resource-rich countries, policy makers also need to remove, inter alia, uncertainties over ownership, tax treatment and allocation of mineral rights.

5. The development of a seamless Africa and open markets that allow the exploitation of economies of scale. This can be complemented with greater competition in domestic and regional markets.
6. The above aspects would be also critical to attract foreign direct investment, but efforts are necessary to give such investment equal treatment to domestically generated investment. FDI is generally associated with bringing new technologies, as has been the case of the foreign involvement in the exploitation of natural resources, and therefore plays a key role in raising TFP and growth.
7. An advanced and efficient financial system is essential to the development of capital markets that finance investment activities. The rapid spread of pan-African banking systems, as well as the introduction of a framework that facilitates taking advantage of portfolio capital inflows (frontier markets) should help in this regard.
8. Ensure environmental sustainability, within reasonable parameters of costs and benefits. In water constrained countries, enhance water management and infrastructure, as this is an essential step in expanding agriculture and agro processing and thus rural development.

2. Savings

Correspondingly, savings will need to rise to some 26 percent of GDP a year to avoid balance of payments problems while allowing for the imports associated with higher investment.[29] As in the case of investment, a number of African countries, which already have high savings to GDP ratios --especially those obtaining high rents from natural resource production--will need to raise their savings ratios well above this figure. The increase in savings needs to be supported by higher foreign direct investment (FDI), especially in non-resource extractive activities. Clearly, as growth rises on a sustainable basis, domestic savings will respond accordingly and become a more important financing source for investment, leading to a virtuous cycle of higher investment, savings and growth, as well as a sustainable balance of payments position.

Like in the case of investment, important efforts are needed to promote savings. These include:

1. A sound and stable macroeconomic policy framework, aimed at fostering sustainable high growth, is critical to increase savings, both domestic and foreign. Such a framework is also critical to help curb capital flight and even encourage the repatriation of the considerable resources Africans are holding abroad. Just deposits held by Africans at the BIS reporting banks amount to US$345 billion.[30]
2. The public sector should play an important role in increasing domestic savings. The government would attain it by ensuring fiscal sustainability and re-balancing government spending to make room for higher public investment. The public enterprises should also add to public savings by becoming more efficient and thus improving their profitability. More generally, public savings

[29] The implied external current account deficit of 4 percent of GDP is expected to be more than financed by FDI and sustainable external financing, and thus allow for some accumulation of international reserves.

[30] This is only a portion of the assets Africans own abroad, as some financial assets are most likely held in, or channeled through, non-BIS reporting financial institutions; assuming that Africans also hold deposits in offshore financial centers in about the same share as those in BIS reporting banks, some US$55 billion would need to be added to that amount. In addition, one should add the value of real estate properties and other assets Africans own abroad, but that is difficult to quantify.

can be increased considerably by enhancing the public sector's effectiveness and governance. In the case of resource-rich countries, stabilization and wealth funds, as discussed in the Africa 2050 study, need to play an important role in this regard.

3. Similarly, efforts to reduce the cost of doing business, especially those associated with having to deal with red tape, unnecessary regulations, and poor public services and infrastructure should promote a dynamic private sector and thus higher corporate savings.

An efficient, competitive, and well-regulated financial system will help encourage financial savings, which are relatively low in Africa.[31] Higher financial savings will help deepen financial intermediation and, eventually, develop a dynamic domestic capital market.[32] This could be supplemented by a comprehensive social security system that includes affordable compulsory membership for all employees.

IV. A Macroeconomic Policy Framework for Sustainable High Growth and Inclusion

Undoubtedly the policy reforms and associated hard won improvements in macroeconomic performance African countries have attained need to be preserved, but further efforts are needed to ensure and strengthen the sustainability of these improvements and thus achieve high growth. The following sections address the macroeconomic areas where such further efforts may need to be considered.

It is important to acknowledge that it is difficult to propose a single macroeconomic policy framework for all African countries, given the diversity of stages of development, circumstances, institutions and endowments. Nevertheless, it is generally recognized that for economic activity to expand rapidly and equitably on a sustainable basis, macroeconomic policies need to ensure stability and predictability, as these aspects are critical to create an environment that enables economic agents to plan ahead, fostering high private sector investment and thus promoting high economic growth.

Stability and predictability require a clear commitment from policy makers to implement sound fiscal and monetary policies, consistent with debt and balance of payments sustainability. The ideal would be for these policies to be supported by a flexible exchange rate regime, given that such a regime allows for an independent monetary policy and provides countries with a critical policy instrument to help absorb external shocks. However, it is important to note that many African countries have had a fixed exchange rate regime or have belonged to a currency union for years, and that such arrangements may also help support macroeconomic stability, if properly managed.

The following sections broadly discuss the various policies, and, where possible, propose specific approaches appropriate to certain country circumstances.

[31] For example, in 2011 the average ratio of bank assets to GDP was 48 percent in Sub-Saharan Africa, compared with 60 percent in Latin America and the Caribbean and in the Middle East and North Africa, and 163 in Asia.

[32] In the case of the smaller economies, consideration could be given to the development of regional capital markets in order to take advantage of economies of scale.

1. Fiscal policy

From a macroeconomic point of view, sound fiscal policies call for the maintenance of relatively overall fiscal deficits that ensure public debt sustainability and thus preserve macroeconomic stability. From a microeconomic point of view, sound fiscal policies call for an effective and equitable revenue mobilization system, as well as an efficient resource allocation process that is geared at improving human and physical capital and at reducing inequality. From both points of view, governments should provide the certainty that future fiscal policies will remain sound. This certainty should help lower the cost of capital and thus foster higher private investment and savings, promoting faster economic growth and contributing to the development of an inclusive society. Good governance requires that fiscal policies be conducted in a framework of transparency and accountability. In the case of mineral extracting/exporting countries, sound fiscal policies also involve the need to deal with revenue volatility as well as with sustainability and intergenerational equity considerations.

There is no doubt that the current provision of public goods and services does not meet the population's needs in many countries, in terms of both quality and quantity, given the very severe gaps in education, health, and infrastructure gaps. These gaps are mainly a consequence of pressures caused by growing other current expenditures (including very large generalized subsidies in a number of countries). And the concern is that these gaps are likely to widen as current spending continues to rise with the size of bureaucracies and inefficient outlays, and eventually with population aging.

The priorities and goals of fiscal policy need to change. They should help establish an environment for sustainable, high and inclusive economic growth, and thereby achieve three critical objectives: 1) increase employment, 2) reduce inequality, and 3) improve equity:

1. By closing the enormous gap in infrastructure (e.g., transport, logistics, energy, water resource development, schools, hospitals, and sanitation), public investment (including through Public-Private Partnerships) will help create employment directly (in the formulation and construction of projects, the production of inputs for the projects, and the operation and maintenance of the new facilities).[33] Public investment also crowds-in private investment and thus creates employment indirectly by improving the efficiency of the economy and laying the basis for stepped-up growth. This is the multiplier effect. Moreover, given Africa's rich human factor endowment, labor-intensive construction methods—where appropriate—should be given preference over capital-intensive ones.
2. Government spending to enhance human capital needs to increase. As in the case of South Africa and other African countries, the current quality of education denies many the skills needed to access employment, and thereby reduces the dynamism of the economy. Poor health care denies many the future. By improving the quality of education (at all levels)[34] and health will endow the population with the necessary tools to take advantage of opportunities and thus reduce inequality. Thus, there is a need for allocating the resources necessary to improve school infrastructure, educational materials and equipment, clinics, hospitals, medical

[33] World Bank. Africa's Infrastructure: A Time for Development, 2009.

[34] This should also encompass training, including early-stage entrepreneurship and artisan training.

supplies and equipment, it is imperative that budgets provide adequate resources to build the human resources for the education and health sectors of the future. Similarly, assistance to farmers through extension services and improved irrigation infrastructure will help develop a more prosperous rural population. The same applies to supporting financial co-ops or other financial entities that would enable small farmers to enter formal value chains. Of course, employment will be increased through all these efforts.

3. Policies that raise growth can significantly advance social equity goals. However, this needs to be supported by direct policies, such as enhancing social protection, food security and nutrition. In some countries (like South Africa), government may play a role in the development of low income housing, within its budget constraint. In view of the success of the conditional transfers programs implemented in Latin America, African policy makers may also want to consider establishing such programs. Such transfers have not only reduced poverty, but also increased economic activity, creating important centers of development.

To address the infrastructure and human capital gaps and reduce misallocation and waste, there is a need to improve public expenditure allocation and management, including the public procurement process, and to implement a targeted system of subsidies where they are considered essential. But this may not be enough to provide the necessary room to cover the much-needed increase in public infrastructure investment, education and health. While Africa will be potentially benefiting from its demographics in the next decade or two, over time, its population will begin to age and therefore countries will see increases in spending associated with aging, which could be significant. This involves a strong safety net (which should be affordable as countries become richer (some will be prosperous middle-income countries). One approach would be to entrench a social security system that covers all working people, with special protection for the poor using conditional transfers, as mentioned earlier.

Accordingly, to avoid widening the overall fiscal deficit, government revenue will need to rise considerably, even after assuming that gains in efficiency spending and subsidy reduction could be significant.[35] Revenue will also need to rise in order to eliminate Africa's aid dependency.[36]

The tax structure in African countries needs to serve the objective of raising revenue, while promoting economic growth, the following tax structure may be considered. We recognize that it is difficult to propose an ideal tax structure to a continent with such a diversity of countries and with so different endowments as the African one, but it is possible to outline some key features:

- A flat corporate income tax with rates that make the countries competitive and attractive to Foreign Direct Investment (FDI);
- A relatively progressive personal income tax with only a limited number of brackets and low threshold;

[35] In addition, the elimination or even important reduction of implicit subsidies, especially those on fuel consumption, should yield considerable revenue gains. Of course, there will be a need for measures to ameliorate the impact of the subsidy elimination or reduction on the most vulnerable segments of the population. Over time, as the population becomes richer, even such measures should be eliminated to make room for other priority spending, including that related to population aging.
[36] In 2011, budgetary grants amounted 2.4 percent of GDP for Sub Saharan Africa (excluding Nigeria and South Africa) and 0.75 percent for the continent as a whole.

- A value added tax that applies uniformly to all consumer goods and services; and
- A set of selected excise taxes, especially on fuel consumption and low import duties, an up-to-date system or real estate taxes (administered by local governments).
- A contributory social security system.

The tax system should have virtually no exemptions nor preferential treatments to avoid tax planning (avoidance) and evasion. The pros and cons of any exemptions or preferential treatments will need to be evaluated carefully against their opportunity costs, including a potential proliferation of such exemptions or preferential treatments that would undermine the integrity and efficiency of the tax system. The tax system will need to be supported by an effective and efficient tax administration, using best practices and latest technologies, and avoiding discrimination among taxpayers.[37]

2. Monetary and exchange rate policies

The long-term nature of this study would suggest that there is no need to address monetary policy, given its relative short-term focus. However, experience has made abundantly clear that price and financial stability are essential to establish and maintain the basis for sustained, strong economic growth.

As noted above, many African countries have improved considerably their monetary policy management over the last decade and a half, especially as a result of increasing the autonomy of their central banks, and thereby enhanced its capacity to control inflation. Those countries with flexible exchange rate regimes have introduced indirect instruments to control monetary aggregates and have implemented successfully; some have adopted inflation targeting frameworks. Those with conventional exchange rate pegs have kept prudent credit policies. Nevertheless, Africa's higher inflation rates than those in other regions suggest that monetary policies may need to be strengthened, especially because the poor are hurt the most by the inflation tax and to prevent these inflation rates from becoming entrenched.

- How monetary policy needs to be conducted and the tools to be used depend very much on the exchange rate regime and the degree of development of the financial system:[38]
  For countries with a flexible exchange rate regime and a more developed financial system, the adoption of an inflation-targeting framework would be advisable. Such a framework has proven to be quite successful in reducing inflation and keeping it low. Adoption of this framework requires a high degree of independence or autonomy of the Central Bank in conducting monetary policy and that government deficits do not condition the growth of money supply (i.e., no fiscal dominance). As mentioned, some African countries have been implementing such a framework quite successfully; South Africa has been a leader in this area among emerging markets.
- For countries with a flexible exchange rate regime, but with an underdeveloped financial system, the Central Bank will need to target directly the monetary aggregates in the initial

[37] While many countries have followed the advice of International Financial Institutions and centered their efforts on large taxpayers units, these efforts may have encouraged firms to remain small and thereby forgo the benefits of scale and possible access to credit and new technologies, thus hampering growth potential.

[38] We take the view that a flexible exchange rate regime is preferable to a fixed one because it provides the authorities with an important macroeconomic policy instrument and because it allows the exchange rate to act as a shock absorber.

stage and as the financial system develops and an interbank becomes operational, the Central Bank may start to control such aggregates through indirect instruments such as open market operations. As the financial system becomes more developed, the monetary authorities should move towards creating the basis for the adoption of, and subsequently adopt, an inflation-targeting framework.

- For the countries that have a fixed exchange rate regime or are part of a currency union, most notably those in the West African Economic and Monetary Union (WAEMU) and the Central African Economic and Monetary Union (CAEMU), the authorities will need to assess if these exchange arrangements are serving well their countries. If these regimes were to continue, it would be important that credit policy remain cautious and consistent with preserving external competitiveness.

As elaborated in the chapter related to natural resources, it is important to note that the conduct of monetary policy in resource-rich exporters, under any exchange rate regime, will be considerably facilitated by the establishment of a stabilization/liquidity fund that removes the pro-cyclicality of fiscal spending associated with fluctuations in export earnings. Similarly, the establishment of a sovereign wealth fund would help reduce the excessive pressure on domestic resources that a natural resource boom typically causes. Moreover, the combination of these two funds will lead to a more stable macroeconomic environment and therefore less significant exchange rate tensions than otherwise. Please note that this combination provides a strong foundation for monetary policy based on an Inflation-targeting framework.

The conduct of monetary policy will also be strengthened by a sound and developed financial system, as a precursor to an advanced capital market. To this end, it would be critical to adopt a regulatory and supervisory framework that is in line with international best practices. Such a financial system will facilitate the external liberalization of capital markets.

As financial integration spreads worldwide, African countries will inevitably have to prepare for eventual integration to that framework. That being said, liberalizing capital markets without adequate preparation in terms of structural reforms and financial soundness would be premature and costly. The costs and benefits as well as the timing of such external liberalization should be carefully weighed. The potential benefits of integration into external trading systems and the associated modern financial technologies ought to be weighed against the likely costs of substantial volatility of capital flows. Countries will have to be prepared with an appropriate strategy for managing capital flows, perhaps with a focus on encouraging stable, long-term inflows rather than potentially volatile short-term inflows.

CHAPTER 3: 2050 SCENARIOS

I. Introduction

Three scenarios—convergence, business-as-usual, and downside—are outlined here to illustrate the broad range of outcomes possible. These scenarios are based on a model of the global economy and methodology prepared by Centennial Group International, which projects long term evolution of GDP of 186 countries as a function of labor force, capital stock, and total factor productivity (see Appendix 1: Model).[39]

This chapter presents the economic outcomes associated with the vision Africa 2050 –based on convergence with emerging market economies. The chapter also presents two other scenarios--business-as-usual and downside—to illustrate the broad range of outcomes possible. These scenarios are based on a model of the global economy and methodology prepared by Centennial Group International, which projects long term evolution of GDP of 186 countries as a function of labor force, capital stock, and total factor productivity (see Appendix 1: Model).[40] The chapter includes an assessment of the opportunity cost of continuing with "business as usual" vs. achieving convergence. The chapter concludes with a discussion of the more pessimistic downside scenario.

II. Convergence vs. Business-as-usual

Africa's recent improved performance (see Figure 3.1) forms the basis for the convergence scenario, in which convergence in standards of living is driven by trade that reduces factor price differences between rich and poor countries, capital deepening in countries with lower capital/ labor ratios, and accelerated TFP growth to catch up with TFP levels in advanced economies. The scenario assumes that 19 African countries are "early convergers"[41] whose TFP growth begins to converge with that of advanced countries this decade, that 15 are "late convergers"[42] whose TFP growth begins to converge in the following decade, and that the remaining 20 countries currently considered "fragile"[43] transition out of fragility over the next 30 years.

[39] The Centennial growth model is further explained in Kohli, Szyf, and Arnold (2012) and its results are reflected in numerous studies including Mexico 2042—Achieving Prosperity for All, Asia 2050—Realizing the Asian Century, India 2039—An Affluent Society in One Generation, and Latin America 2040—Breaking Away from Complacency.

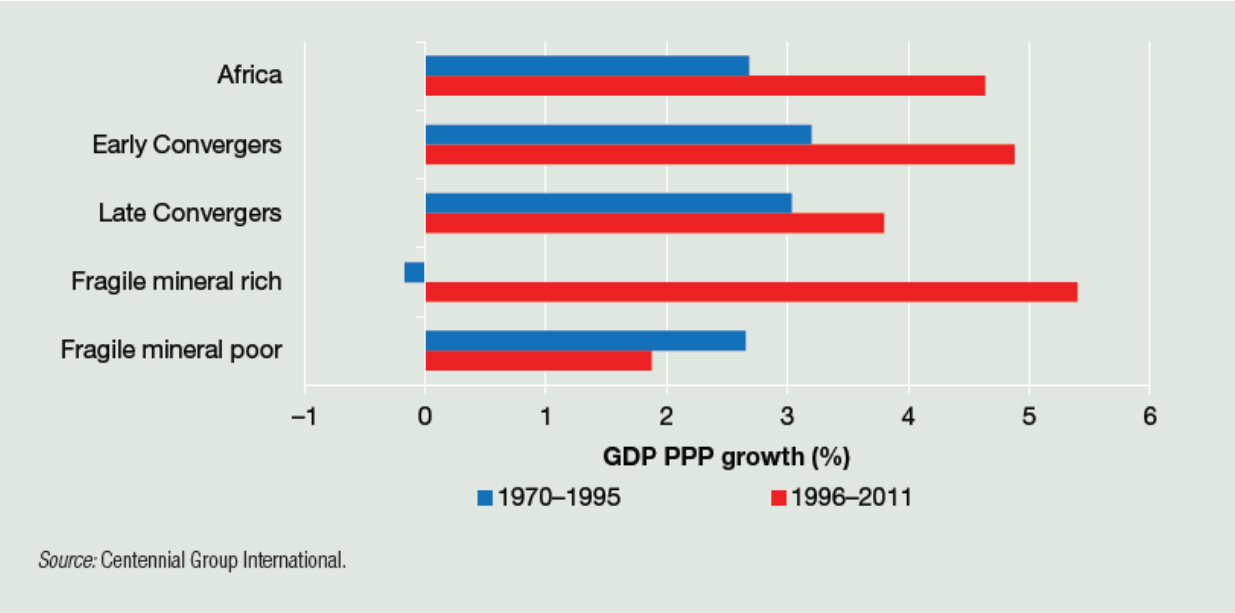
[40] The Centennial growth model is explained in Kohli, Szyf, and Arnold (2012) and its results are reflected in numerous studies including Mexico 2042—Achieving Prosperity for All, Asia 2050—Realizing the Asian Century, India 2039—An Affluent Society in One Generation, and Latin America 2040—Breaking Away from Complacency.

[41] Four countries (Botswana, Cape Verde, Mauritius, Mozambique) with 25 years of per capita GDP growth greater than 3.5 percent plus 15 countries with annual TFP growth over the last decade greater than one percent.

[42] Fifteen non-fragile countries with annual TFP growth over the last decade of less than one percent.

[43] The 20 countries classified by the African Development Bank and the World Bank as being in "fragile situations".

Figure 3.1 African GDP growth has greatly increased since 1995 (real GDP growth)



Source: Centennial Group International.

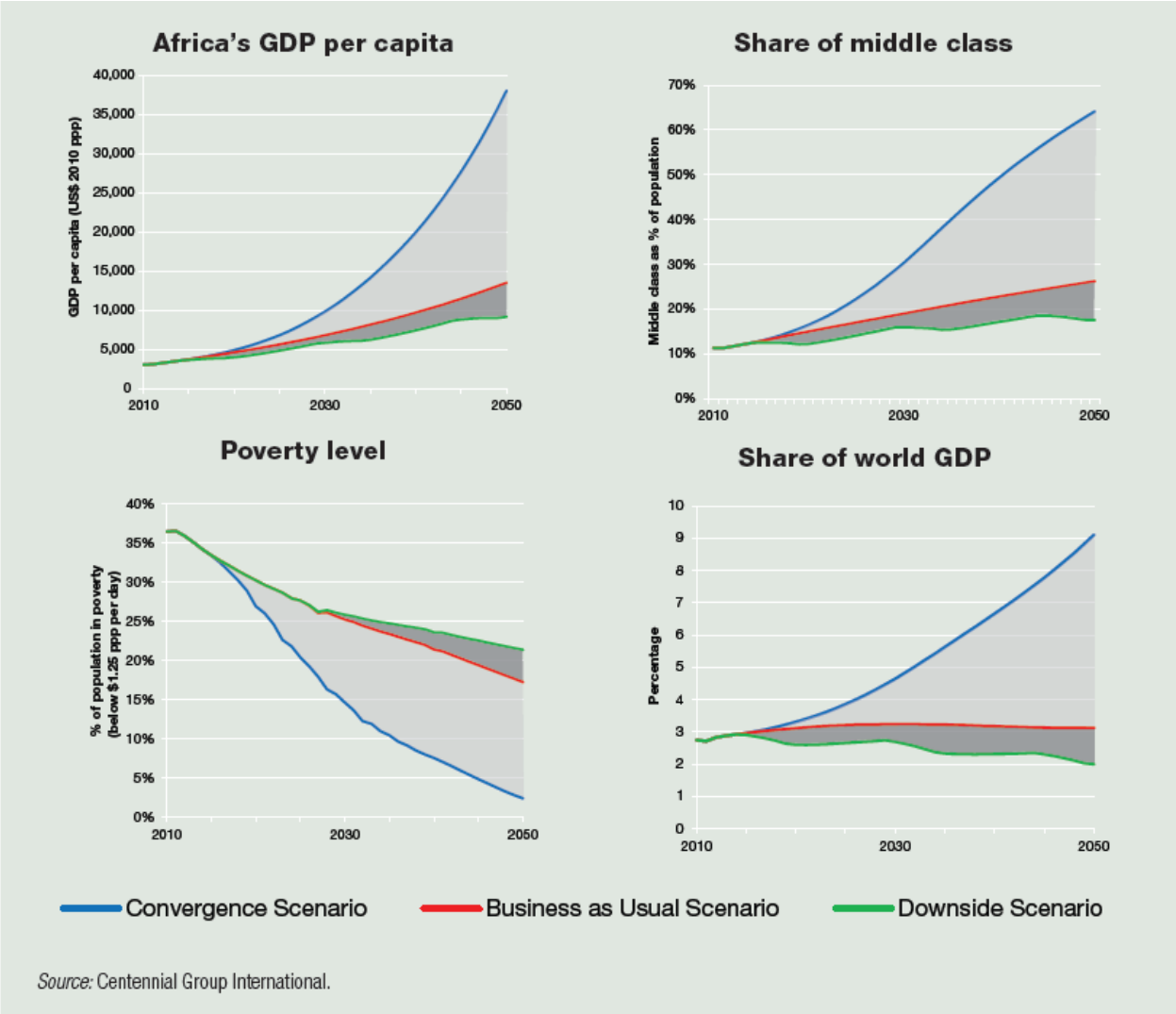
Under the convergence scenario per capita incomes in Africa could grow by 4.6 percent annually over the next 40 years and exceed US$17,000 (2010 PPP US dollars) in 2050 (Figure 3.2). Africa-wide per capita income would be higher than that of Russia, Malaysia, Mexico, or Turkey today. Under such a scenario African per capita incomes would begin to converge with the rest of the world, moving from 27 percent of the world average today to 52 percent.

Such sustained growth would set in motion many changes that would transform the lives of Africans and Africa's role in the world. The size of the middle class[44] would increase more than 10-fold in absolute numbers, and to 68 percent of the population from 12 percent today. The number of poor would decline to 53 million (or under 3 percent of the population) from 380 million (or 37 percent) today. Africa's share of world GDP would more than triple from less than 3 percent today to 9 percent in 2050 (see Figure 3.2).

The charts on the following page compare these outcomes of the convergence scenario with those under the business-as-usual scenario. The latter assumes that Africa's higher investment rates of recent years continue, its labor force continues to grow, commodity prices remain high, and the generally improved policies of the last 10–15 years are maintained—but there is no sustained action on the policy agenda described above. As a result, unlike the convergence scenario, productivity growth does not accelerate. Four countries with consistently high growth for the last 25 years[45] continue to converge, but the other 30 non-fragile countries do not converge[46], and the fragile countries stay fragile.

[44] Middle class defined as per capita income greater than US$10.80 and less than $100 a day (2010 PPP US dollars).
[45] Botswana, Cape Verde, Mauritius, and Mozambique.
[46] Their TFP growth matches that of the long-run TFP growth of the advanced economies (1 percent).

Figure 3.2: There is a high opportunity cost for not achieving the convergence scenarios



Source: Centennial Group International.

Under the business-as-usual scenario per capita incomes continue to rise at 1.9 percent annually and reach more than US$6,000 (2010 US dollars PPP) by 2050 (see Figure 3.2). Given growth in the rest of the world, however, Africa's per capita incomes would actually diverge further from those in the rest of the world, falling to 20 percent of the world average by 2050. The size of the middle-class would increase but after 40 years would still be only 27 percent of the population. Nearly one in five Africans would, correspondingly, still be mired in poverty. Finally, given growth elsewhere in the world, Africa's share of global GDP would stagnate at around 3 percent.

The shaded area in the charts indicates the enormous opportunity cost to Africans if Africa follows the business-as-usual scenario and fails to realize the convergence scenario. Per capita income would be lower by more than US$10,000, some 40 percent of the population (900 million) would be unable to reach middle class status, an additional 15 percent of the population (325 mil-lion) would be left in poverty. with most African countries approaching 100 years of independence, a continent with a quarter of the world's population but only 3 percent of its economic activity is not only highly unattractive but

poses serious threats to the social and political stability. The threat is acute because such an outcome diverges so far from the aspirations of Africans.

III. Downside Scenario

The business-as-usual scenario is, however, by no means the pessimistic scenario. A much more worrisome downside scenario could arise, for example, if Africa's terms-of-trade were to deteriorate because of commodity price changes and if fragility and conflict were to spread to more countries. It is difficult to model such a scenario but the downside scenario shown in Figure 3.2 assumes that, as a result of commodity price fluctuations, Africa's terms of trade cyclically fall by 15 percent over five years and then recover 15 percent over the following decade (hardly dramatic when seen in the perspective of the last 40 years), that an additional five countries slip into fragility and conflict, and that all the middle-income countries are stuck in the middle-income trap and do not converge with today's advanced economies.

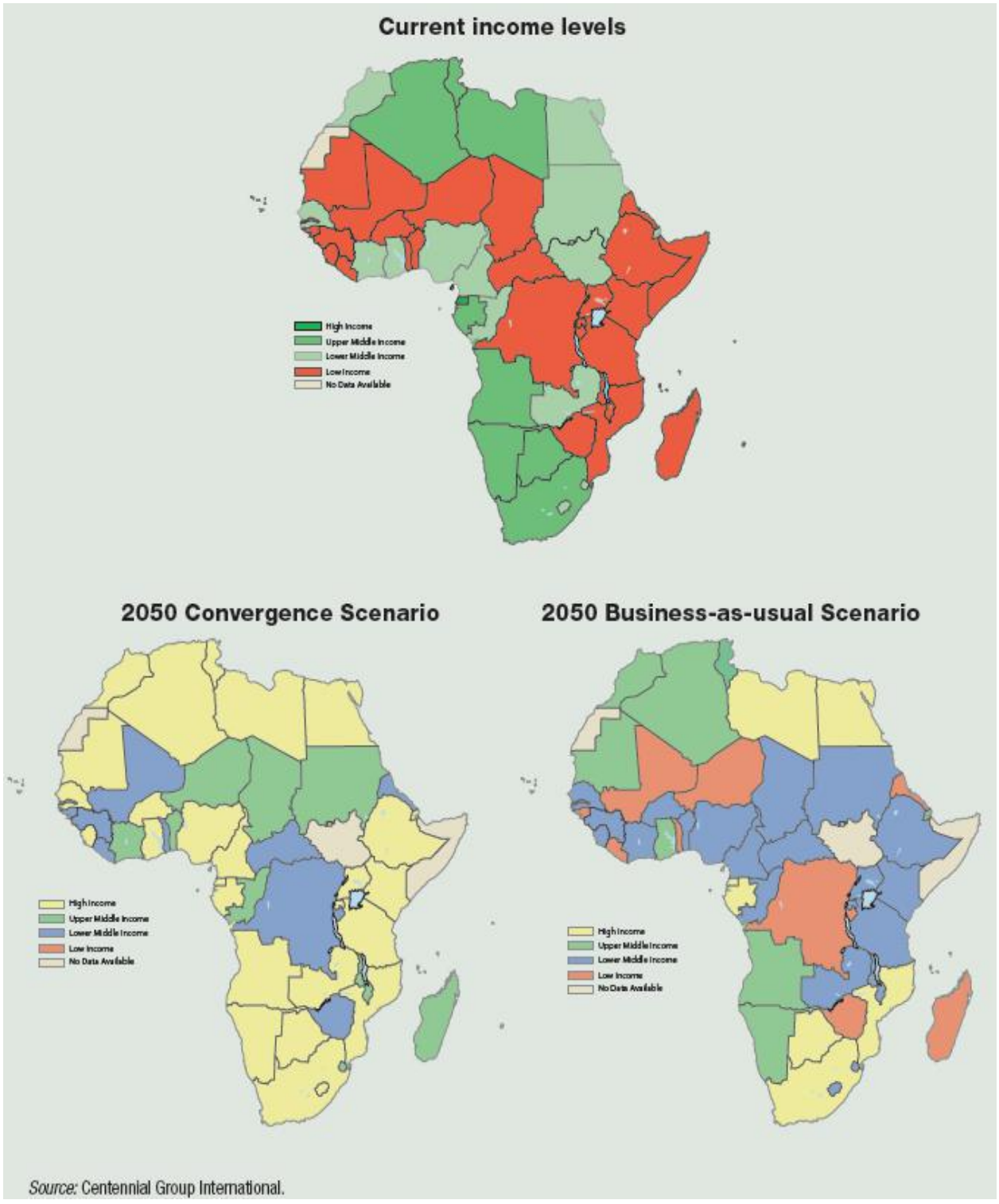
In such a scenario per capita income would grow by less than one percent a year and would in 2050 be only around US$4,000 (2010 US dollars PPP). Given faster growth in the rest of the world, Africa's per capita income would have fallen to only 14 percent or one seventh of the world average, the worst ever. one in three Africans, some 690 million people, would still be in poverty and the middle class would have grown to only 18 percent of the population. On the global stage Africa would be marginalized with only 2 percent of world GDP. In 2050 Africa would still have many low-income countries and few high-income ones (see Figure 3.3). Under such a scenario the aspirations of Africans would be crushed.

IV. Conclusion

The downside and the business-as-usual scenarios paint a very unattractive future. The convergence scenario is feasible but will be realized only if there is vigorous and sustained implementation of the action agenda outlined in this report. This scenario requires sustained, higher productivity growth for most countries over the next 40 years. Countries in other regions, though not many, have achieved such sustained productivity growth. Success with a 40-year agenda depends most on institutional development and political resolve for sustained implementation.

Such a strategy would be a clear break with the past and requires a cultural change. African leaders need to focus on realizing the convergence scenario and be willing to be judged on their success in delivering results. To be able to do so, however, they need to have established a new social contract with their citizens—one that cuts across political, ethnic and religious lines and that promises the Africa in 2050 described above but recognizes that delivering it depends on an unrelenting focus on the action agenda set out in this report.

Figure 3.3: The high opportunity cost for not achieving the convergence scenario, as shown in income levels



Source: Centennial Group International.

CHAPTER 4: DEMOGRAPHY

I. Introduction

Today, most developing countries have achieved quite low levels of mortality and fertility and much lower rates of population growth than in the 1960s. The situation is quite different in Africa, and especially in sub-Saharan Africa (SSA). In several SSA countries, mortality declines have stalled, or even been reversed in the 1980s and 1990s because of the impact of HIV/AIDS and civil unrest. In addition, fertility declines generally associated with mortality declines, in what is called the demographic transition, are occurring in most African countries much later than elsewhere in the world. As a result, most African countries still have very high levels of fertility, high rates of population growth, and very young populations.

Because of these trends, most African countries must today confront two major population-related challenges. First, most countries in the region will need to tackle *the doubling or the tripling of their working age population*. This exceptional increase of the labor force could be called a demographic "heritage of the past". It is the direct result of high fertility levels since the 1960s, a consequence of the lack of interest and a neglect of the demographic trends on the part of public authorities, the civil society, and international donors. Providing jobs to all new job seekers will be a daunting challenge. Today, in all but three African countries, the age group 15-29 represents more than 40% of the adult population (above age 15), a phenomenon known as the "youth bulge". By 2030, 40 of the 53 countries studied[47] are likely to continue to have more than 40% of their adult population in the 15-29 age group, and by 2050, 27 countries (half of them) will still be in that position if fertility decline remains as slow as it has been in the past. These young people will be more and more concentrated in urban areas and mega-cities (there might be 15 cities of more than 10 million in 2050, compared to only two in 2010). This could pose a significant challenge and, unless addressed satisfactorily, might translate into major social disruptions similar to those that have been observed recently in several Northern African countries during the "Arab Spring".

The second challenge facing African countries is related to the creation of the conditions needed to bring a better future for the African young generations of tomorrow. Future development and prosperity require a rapid decline in the presently high dependency ratios, as has been the case in today's emerging countries. This can only be achieved through a steady decline of the proportion of youth aged less than 15 or 20 years. Such a decline will allow reallocating parts of the important resources devoted to the health and education of large numbers of children below age 15, to the secondary and tertiary education of young adults and to the creation of jobs. In fact, the corresponding changes in the age structure fulfill one of the conditions needed to benefit from a demographic dividend. Such a scenario implies, for the majority of African countries, a much more rapid fertility decline than the one that has been observed so far. This fertility decline can only be achieved if contraceptive coverage increases markedly from present low levels to rates of about 60% or more of women in union by 2050.

[47] There are 54 sovereign countries in Africa with South Sudan, which became independent in July 2011. South Sudan is not analyzed in this chapter because of lack of reliable estimates.

To sum up, the dual challenge of most African countries will be to deal with the demographic situation inherited from the past whilst preparing at the same time for a better future for the upcoming generations. This can be managed through the design and implementation of sound population, health, education, and economic policies. However, these policies must be put in place as soon as possible for these countries to be able to capture the benefits of a demographic dividend, trigger inclusive growth, reduce poverty levels, and eventually achieve economic convergence.

The main reason for the rapid population growth of most African countries since the 1960s is that they have experienced late and slower demographic transitions and fertility declines than other countries of the world (Bongaarts & Casterline 2012; Guengant 2007: Guengant 2012; and Guengant & May 2011a). The demographic transition is defined here as the shift from a "traditional" regime of high mortality and high fertility to a new "modern" regime of low mortality and low fertility.

This shift from a "traditional" to a new "modern" demographic" regime can be slow or more rapid, it can be influenced by socioeconomic factors, and it can be accelerated (or not) by the design and implementation of adequate population and health policies (or the lack thereof). Northern African countries have seen their fertility decline sooner, in the 1970s, i.e., a decade before the countries in Southern Africa. But most other countries in Eastern, Middle (Central), and Western Africa experienced the beginning of their fertility declines only in the 1990s or 2000s, and some of them have had so far no fertility reduction whatsoever, or only incipient declines.

Conceptually, this chapter relies on a two-way relationship between socioeconomic conditions and demographic outcomes. First, the chapter posits that socioeconomic advances help foster demographic transformations and that improvements in demographic indicators also help trigger socioeconomic advances (Word Bank 2007). However, improvements in socioeconomic conditions *per se* will not bring demographic changes nor will demographic transformations *as such* bring socioeconomic changes. Demographic transition is one of the necessary conditions to foster socioeconomic development, but it is not a sufficient one. Moreover, public authorities will need to intervene on mortality and particularly on fertility for the demographic changes to be rapid enough, and public authorities will need to do so, including through adequate population and health policies and programs. Secondly, the chapter asserts that demography is not destiny, in other words that the demographic trends are not an independent variable. On the contrary, policies do influence demographic outcomes and may do so even in a relatively short term, as short as 5 to 10 years, because of the relatively rapid impact of such policies on the annual number of births (May 2012; Guengant 2012).

The remainder of this chapter begins with an examination of the past and current demographic situation of the continent. Next, the chapter presents the UN population (2010) and urbanization (2011) projections for Africa, and examines the results of their different assumptions in terms of social development and dependency ratios. Section IV briefly presents a demographic Vision for 2050 and Section V concludes with a set of necessary steps and recommendations that are needed to achieve the vision.

II. Demographic Context[48]

The main demographic indicators of the 53 African countries studied are presented in Annex 2, namely the total population in mid-2010, the most recent fertility levels, life expectancies at birth in 2005-2010, the percentage of population residing in urban areas in 2010, and the number of urban agglomerations with 750,000 inhabitants or more in 2010.

A. Mortality Levels and Trends since 1960

Life expectancy at birth, or the average number of years that a newborn would live under the mortality conditions prevailing at a given time, has increased in most African countries since the 1960s. But the progress has been slow, and thwarted in several countries by the deterioration of health services, the impact of HIV/AIDS, and occasionally civil strife and social unrest.

In the early 1960s, mortality levels were high in most African countries, and therefore life expectancies were low: below 50 years (and in many cases below 40 years), compared to life expectancies in the selected non-African countries, which were generally above 50 years. During this period, only seven countries of the 53 African countries studied here had life expectancies above 50 years. They were mainly islands or Southern African countries, i.e., South Africa, Botswana, Sao Tome and Principe, Zimbabwe, Cape Verde, Mauritius, and Seychelles, which had life expectancies above 60 years. Among the 12 selected non-African countries, only five countries had life expectancies between 40 and less than 50 years.

Between 1960-1965 and 2005-2010, increases in life expectancies have been important in most Northern African and African island-countries, as well as in most other non-African countries. Life expectancies at birth in 2005-2010 were estimated at above 70 years in eight countries, i.e., Egypt, Morocco, Cape Verde, Mauritius, Algeria, Seychelles, Tunisia, and Libya. But for most of the remaining 45 African countries, from the 1990s onwards, life expectancies increases have been modest, or have stagnated, and in some cases they have even decreased. This has been the case in particular in the countries most affected by the HIV/AIDS epidemic (especially in Southern and Eastern Africa), or in countries that experienced civil wars and social unrest.

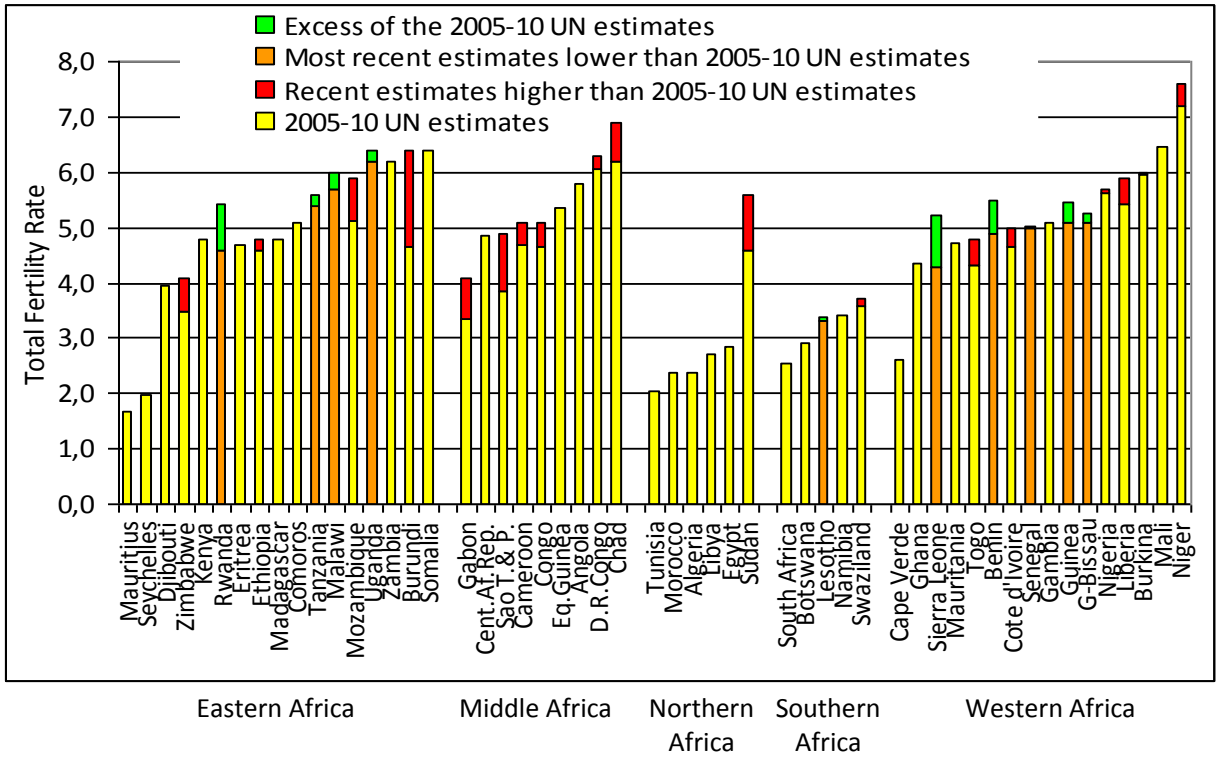
In eight of the 12 selected non-African countries, 15-year old adults had In the early 1960s a probability of dying between 15 and 60 ranging from about 250 to 350 per 1,000, or one chance in four or three to die before their 60th birthday. For the same period, most African adults aged 15 had a probability of dying between 15 and 60 ranging from 350 to more than 500 per 1,000, or one chance in two or three to die before their 60th birthday. Such high levels did not motivate adults to plan for their future. Inhalf of the African countries in 2005-2010, the probability of dying between 15 and 60 was still estimated at more than 350 per 1,000, and in some cases (in Southern and Eastern African countries, those most severely affected by HIV/AIDS), at above 500 per thousand. Therefore, for the young adults in these countries, the chances of surviving up to their 60th birthday were still rather uncertain.

[48] See also methodological notes in Annex 1.

B. Fertility Levels and Trends since 1960

As for mortality, fertility declines have been slow and uneven in most African countries, and are still far from converging to the levels observed today in the emerging countries and in most other developing countries. As new data on total fertility rates became available since the latest 2010 United Nations projections, we have compared these estimates with the latest data published (without adjustments) (see Figure 4.1 and Annex 2).

Figure 4.1: Total fertility rates 2005-2010 estimated by the United Nations and most recent estimates from 2009-2012 surveys results, by increasing order for each region



Sources: United Nations 2011, and DHS and MICS 4 surveys results (final or preliminary results).

Using these most recent data, we have established a new typology of fertility transition in Africa[49]. Two broad groups can be identified.

The first group comprises countries where total fertility rates (TFR) are now at less than four children per woman. These can be considered as countries where the "fertility transition is completed or close to completion". A total of 13 countries are concerned, accounting for 22% of the total population of the continent.

The second group encompasses countries where total fertility rates are now between four and nearly eight children per woman (case of Niger). These can be considered as countries where the "fertility

[49] Previous typologies were based on 2009 data: see Guengant 2007 and 2009.

transition is still far from completion". A total of 40 countries (in fact 41 considering Sudan and South Sudan separately here) are concerned, accounting for 78% of the total population. Within this group, one can identify three subgroups, as follows:

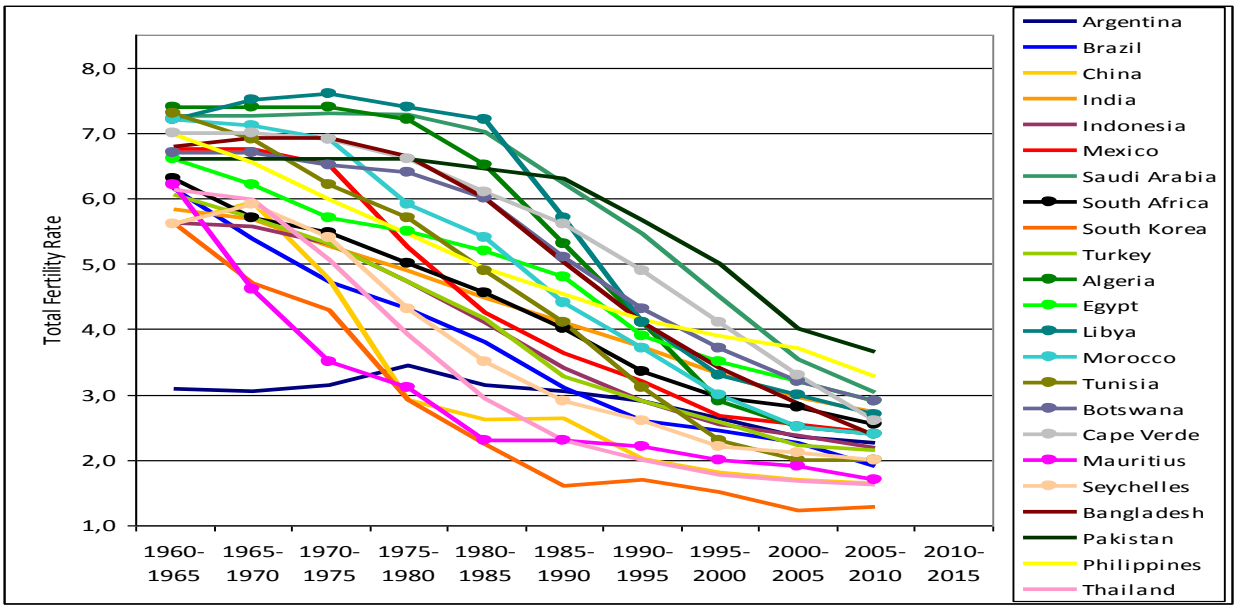
- "Transition in progress": This encompasses 15 countries with a TFR between 4 and less than 5 children per woman, accounting for 22% of the total population. These are generally coastal countries, with high urbanization, and in some case a political commitment, albeit uneven and irregular, to lower fertility (Ghana, Kenya, and recently Ethiopia and Rwanda).
- "Slow and irregular transition": This category includes 16 countries with a TFR between 5 and less than 6 children per woman, accounting for 37% of the total population. Again, these are mainly coastal countries, with mixed urbanization rates, and an absence of, or at least a low, political commitment to lower fertility. Half of these countries are considered "Fragile".
- "Very slow and/or incipient transition": This group encompasses nine countries with TFRs above 6 children per woman, accounting for 19% of the total population. Most of these countries are landlocked, with low levels of urbanization, and a lack of strong political commitment to lower fertility. A majority of these countries are considered as "Fragile".

Overall, 25 countries, accounting for nearly 60% of the population of the continent and 70% of the population of sub-Saharan Africa belong to the "slow and irregular" or "very slow and/or incipient" transition subgroups, and can be considered as being far from completing their fertility transition.

This pattern of persisting high levels of fertility in the majority of African countries differs markedly from what has been observed in other developing countries since 1960. To illustrate this difference, we have compared the evolution of total fertility rates of the 10 emerging countries that are part of the G20 Group (including South Africa), plus 9 African countries selected among the "completion or close to completion group", and four other developing countries, i.e., Bangladesh, Pakistan, Philippines, and Thailand (see Figure 4.5).

All the selected emerging and developing countries and the 10 African countries (including South Africa) of the "completion or close to completion" group had average number of children per women of about 6 to 7 children in the early 1960s, and around 1.5 and 3 children in 2005-2010 (see Figure 4.2). In 2005-2010, only Pakistan and the Philippines had higher total fertility rates, but still less than four children per woman. In most cases, declines started or accelerated in the 1960s, like in South Korea, Mauritius, South Africa, Egypt, Tunisia, and Philippines. In other cases, they started later, i.e., in the 1980s, as in Libya, Algeria, and Bangladesh. The decline has been very rapid in some countries, i.e., in Libya, Saudi Arabia, Algeria, Mexico, China, and Thailand. In several cases, fertility declines were the result of a population and health policy aimed at reducing family size. But in other cases, they were the result of women wanting to control their fertility, which was associated or not with increases in standards of living. The diversity of these patterns and of the fertility levels in 2005-2010, illustrates that the fertility declines and the demographic transition do not come automatically but, as said before, are usually associated with and accompanied by profound socioeconomic changes.

Figure 4.2: Total fertility rates from 1960-65 to 2005-2010 for selected non-African countries and African countries well advanced in their fertility transition



Sources: Sources: United Nations 2011, and DHS and MICS 4 surveys results (final or preliminary results)

The 23 African countries of the "far from completion" fertility transition group had an average number of children per woman of about 6 to 8 children in the early 1960s, and between 4 to 8 children in 2005-2010. Many of these countries experienced a fertility decline in the 1980s or even in the 1970s, i.e., Rwanda, Senegal, Côte d'Ivoire, Kenya, and Togo, but in recent years fertility stalls have been observed. Several countries experienced incipient fertility declines or no decline at all: Niger, Chad, Mali, and Burundi. If recent trends were to continue, a majority of these countries would still have fertility levels around or above 4 children per woman in 2045-2050.

C. Fertility Determinants

Fertility outcomes are shaped by two sets of determinants. The intermediate determinants of fertility are essentially socio-economic in nature, and influence fertility *indirectly*. The proximate determinants of fertility, which are mostly biological and behavioral, influence fertility *directly*.

In most sub-Saharan African countries, the intermediate determinants--levels of education, health status, employment in the formal sector, income levels, urban residence--are still low. Policy interventions in these fields generally bear fruit with a lag, and their impacts on fertility vary from one country to the next depending on other variables, noticeably family norms, social networks, and cultural values. Therefore, the policy objectives such as raising the education levels of girls, especially secondary education levels, reducing maternal and child mortality, increasing female labor participation in the formal sector, achieving a more inclusive economic growth must be considered as objectives in themselves, and not as proxy policy interventions aimed at influencing rapidly fertility through the proximate determinants.

In African countries, as in other developing countries, fertility levels are generally lower among the most educated and urban women (see Bongaarts 2010). The wealthiest households also have generally lower fertility levels than the poorest ones.

Total fertility rates have been calculated according to household wealth index quintiles from DHS data collected in 40 African countries (between 2000 and 2012 for 35 countries, and in the mid- or late 1990s for five other countries). Not surprisingly the "wealthiest" households (the 20% of households having the highest wealth index) have fewer children than the "poorest" ones (the 20% of households having the lowest wealth index). The "wealthiest" households have an unweighted average total fertility rate of 3.4 children per woman against 6.4 children for the "poorest" ones, i.e., 3 children less. However, this difference varies greatly from one country to another: from about 5 children in Angola, Zambia and Liberia, to less than one child in Egypt, Burundi, Central African Republic, and Chad—these are all countries with national high fertility levels except Egypt. Total fertility rates of the wealthiest households are low and range from 1.9 to less than 2.5 children per women in only 5 countries out of the 40 countries considered here, i.e., Morocco, South Africa, Lesotho, Ghana, and Namibia. But in 10 other countries, total fertility rates of the wealthiest households are still between 4 and 6.4 children per women, namely in Uganda, Nigeria, Democratic Republic of Congo, Benin, Guinea, Central African Republic, Mali, Burundi, Chad, and Niger. By contrast, total fertility rates of the "poorest" households are above 5 children per woman in most countries (37 out of 40 countries), and they vary from 6 to more than 8 children per woman in 28 countries. Obviously, the family norms favouring large families (expressed by the ideal number of children in the DHS) are still dominant among the "poorest" households. But these norms explain also the relatively high levels of fertility among the wealthiest households in several countries.

A proxy of wealth is calculated in the Demographic and Health Surveys (DHS), through a wealth index, which categorizes households into quintiles (from the lowest to the highest wealth index), which permits examination of the potential benefits of wealth (and of more inclusive growth) on the health and on the wellbeing of households.

Whereas in most countries women from the "wealthiest" households can afford good prenatal care and adequate delivery conditions, this is not the case for women from the "poorest" households. According to the results from the same DHS surveys, in 35 countries out of 40 more than 80% of the women from the "wealthiest" households who had a birth in the three years preceding the survey benefited from the assistance of qualified personnel (doctor and/or health professional) during delivery. By contrast, in a majority of the countries (24 out of 40) less than a third of the women from the "poorest" households benefited from such assistance. Overall, this means that not only women from the "poorest" households are more exposed to have a pregnancy at risk because of their high fertility, but for this reason they also have a higher risk of maternal death and/or death of their child.

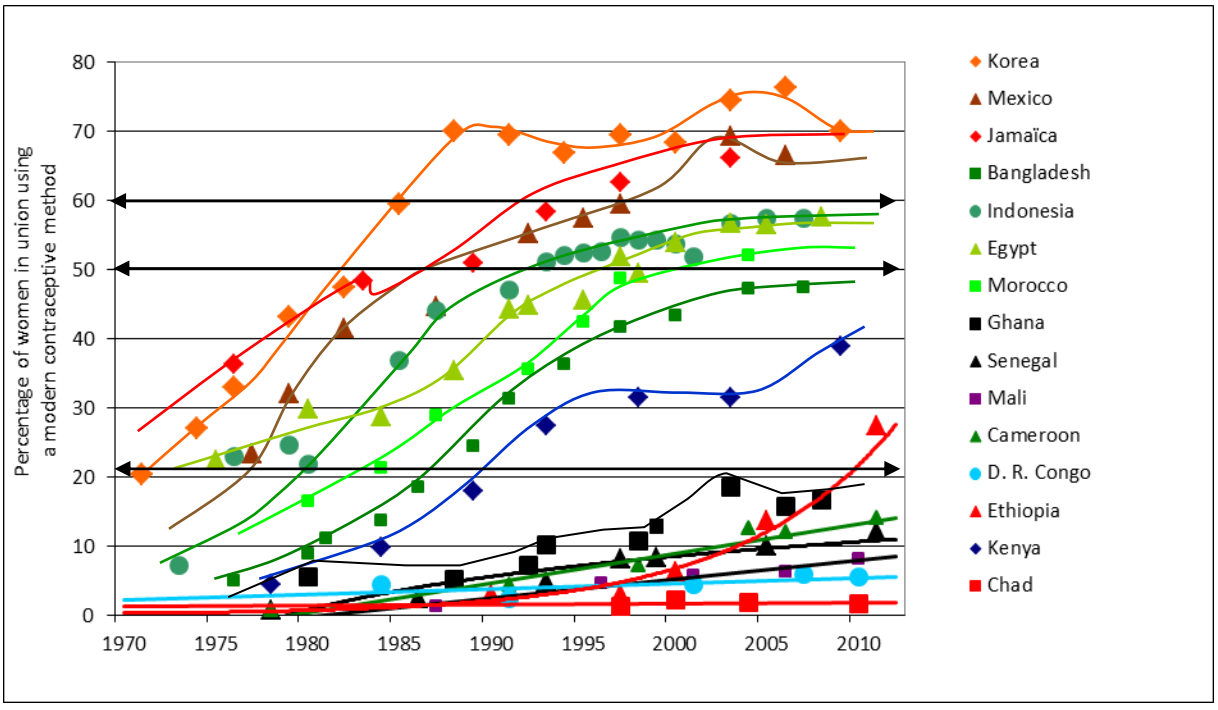
Let us turn now to the *proximate determinants* of fertility. These *determinants* include marriage (unions), postpartum infecundability (or insusceptibility), abortion (induced), contraception (modern

and traditional[50]), and sterility (May 2012: 233-234). Some of these determinants are more amenable to policy interventions than others, especially when one seeks to obtain results in the short term.

It appears that high fertility levels observed today in most African countries are largely the result of persistent low contraceptive prevalence rates. Conversely, the lower fertility levels observed in most emerging, developing and some of the 13 African countries that have completed or are close to complete their fertility transition, result from a rapid increase of the use of contraceptive methods over the past 40 or 50 years, particularly of efficient modern methods—a process that has been called the contraceptive revolution.

Figure 4.3 illustrates the striking gap with respect to the increase in the use of modern contraception since 1970 between emerging market countries, on the one hand, and most SSA countries, on the other. Most countries considered here had modern contraceptive prevalence rates of 20% at most around 1970. In the following 30 to 40 years, modern contraceptive rates have increased rapidly to reach at least 50% and in several cases 60% or more in various North African and Asian countries. On the contrary, contraceptive prevalence rates have not reached 20% in a majority of sub-Saharan African countries, although there are a few recent exceptions to this general pattern (e.g., Ethiopia and Rwanda, and to some extent Madagascar). Obviously, the contraceptive revolution has not yet touched most SSA countries.

Figure 4.3: Progress in the use of modern contraceptive methods in various emerging and sub-Saharan countries since 1970

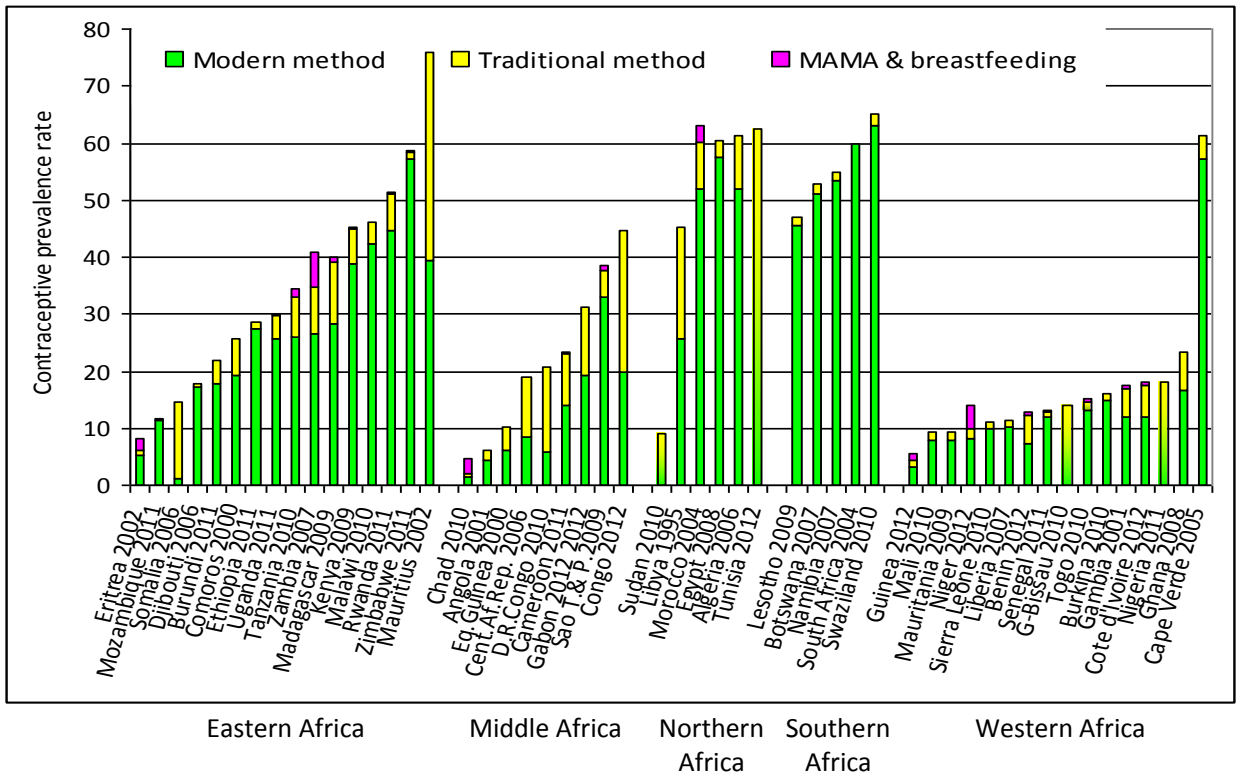


Source: United Nations 2012b, "2012 Update for the MDG Database" Contraceptive Prevalence; see http://www.un.org/esa/population/unpop.htm and United Nations Data base.

[50] Modern contraceptive methods are hormonal (e.g., pill, implants, and injectable), chemical or mechanical (spermicides, IUDs, and barrier methods such as condoms), or surgical (male and female sterilization).

Figure 4.4[51] presents the most recent Contraceptive Prevalence Rates (CPR) for 52 out of the 53 African countries studied here, for modern and traditional contraceptive methods (there are no data for the Seychelles). The corresponding data are recent since they were collected between 2000 and 2012, except for Libya. It should be noted that in some countries modern contraceptive coverage is just a small fraction of traditional contraceptive use. This is the case in particular in Middle African countries.

Figure 4.4: Most recent contraceptive prevalence rates for African countries by type of method, region and decreasing order of total prevalence



Sources: United Nations 2012b, "Update for the MDG Database" Contraceptive prevalence, and DHS and MICS 4 surveys results (final or preliminary results).

Only 7 countries, accounting for 13% of the continent's population, had a recent contraceptive rate above 60%; they are located in Northern and Southern Africa or are island-countries, i.e., Morocco, Egypt, Cape Verde, Algeria, Tunisia, Swaziland, Mauritius, and Seychelles. At the other end of the spectrum, 30 countries accounting for 62% of the total population of the continent have a contraceptive rate below 30%, which is less than half the minimum prevalence rate required to achieve the contraceptive revolution and the fertility transition. It is worth noting that all Western African countries

[51] For some countries of Figure 4.4, contraceptive prevalence rates include the "LAM" (lactational amenorrhea method), which is now often regarded as a modern method of contraception, as well as breastfeeding, which is generally considered a traditional method. However, it should be noted that the effectiveness of LAM or "postpartum contraception" is based on three conditions that must be met simultaneously: 1) the baby must be less than 6 months old, 2) the mother must be amenorrheic (not having her periods back), and 3) breastfeeding should be practiced day and night, on demand. LAM is often equated with breastfeeding, and the percentages of LAM users are generally low and unreliable. For comparison purposes, therefore, the percentages of "users" of LAM or breastfeeding have been displayed separately from the percentages of "users" of other methods. In addition, the most recent data given for Sudan, Tunisia, Guinea-Bissau, and Nigeria are for all methods.

but one (Cape Verde) have contraceptive rates below 30%. In sub-Saharan Africa, 78% of the population lives in a country where less than 30% of the women in union use a contraceptive method.

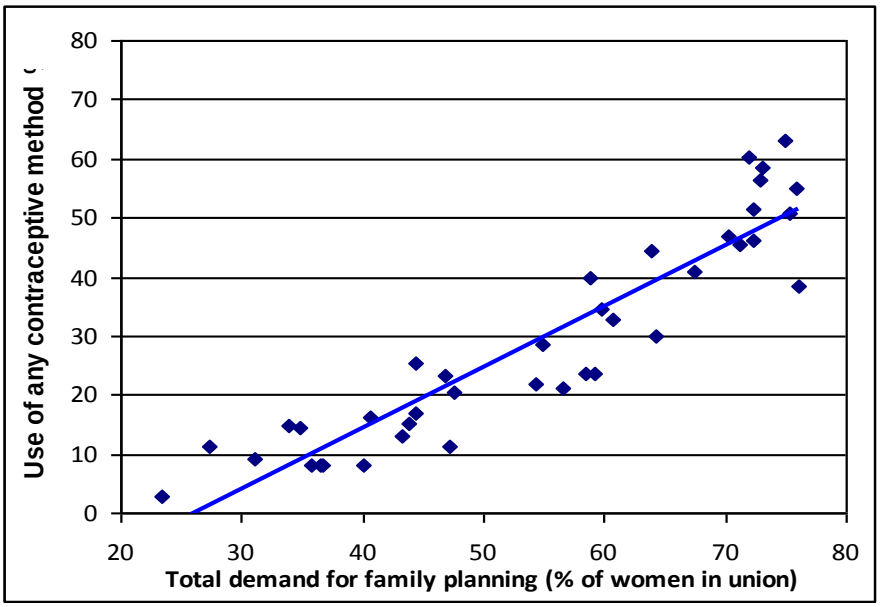
Among the factors that have hindered the rapid expansion of contraceptive coverage in SSA, are the lack of information on, and the lack of access to, contraceptives. The reluctance to use modern contraceptives is also rooted in traditional culture, attitudes, norms, and family structures, and this is also a key obstacle that family planning programs will need to address in SSA.

In fact, in most SSA countries the total demand for family planning remains rather weak and paradoxically only a small portion of this demand is satisfied, reflected in the high levels of unmet needs[52] estimated on average at about 25 to 30% (Guengant & Rafalimanana 2005)[53]. Relatively recent DHS results for 39 countries confirm this finding, yielding an unweighted average of 25% of unmet need—a figure close to the average current use of any method, i.e., 29%. This yields a total demand of 54%, but with considerable variation between countries: from 23% (in Chad) to less than 60% in a majority of countries (24 out of 39) and to 60 to 82% in 15 countries). However, according to the same surveys, only half (49%) of these needs are satisfied if all methods used are considered, and only a third (37%) if one considers only the use of modern and efficient contraceptive methods. Nonetheless, the overall demand for contraception is weak in many countries, which explains the low use of contraception particularly in Western, Middle, and Eastern Africa. Clearly a low demand for family planning translates into low use of contraceptive methods, as can be seen in Figure 4.5 (where there is a strong correlation between the total demand in family planning and the use of any contraceptive method). Consequently, the magnitude of the unmet needs must be appreciated in relation to the total demand. Interestingly, the relationship between the use any contraceptive method and unmet needs is an inverse U-shaped relationship, with a R^2 of 0.43 (see Figure 4.6).

[52] Unmet needs for family planning refer to the condition of wanting to avoid or postpone childbearing but not using any method of contraception, and the total demand for family planning refers to the sum of married women using a method of contraception plus those in need but not using any method.

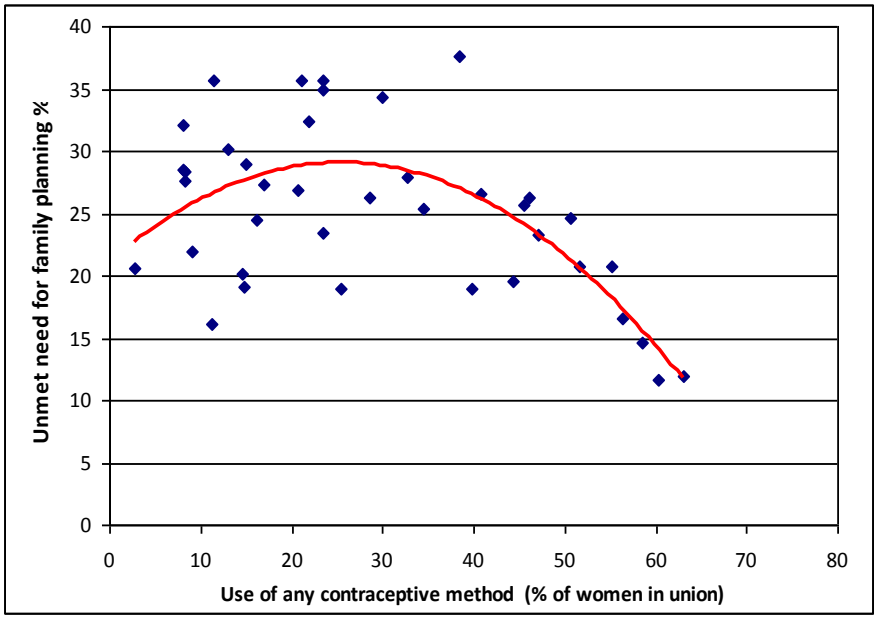
[53] This is a demand-measure constructed from survey data, which attempts to estimate the percentage of women who want to delay their next pregnancy by two years but do not currently use a contraceptive method. However, the percentage of unmet needs may increase as contraceptives become more readily available.

Figure 4.5: Relationship between the total demand in family planning and the use of any method of contraception for 39 African countries



Source: DHS surveys results.

Figure 4.6: Relationship between the use of any method of contraception and the unmet needs in family planning for 39 African countries



Source: DHS surveys results

The leading group of contraceptive users is generally made of the more educated and urbanized women as well as the women from the wealthiest households. The data by quintiles of wealth from the 39 DHS surveys already mentioned, confirm this pattern but they deserve comment. First, the use of a contraceptive method is two times more frequent among women from the wealthiest households than

among women from the poorest households, i.e., 41% against 20%, and the same is true for the use of modern method, i.e., 33% against 16%. However, the unmet needs among the women from the wealthiest households remain quite high: 21% on average and only half (49%) of these needs are satisfied through the use of a modern contraceptive method. Not surprisingly, the situation is worst among women from the poorest households who have a slightly higher percentage of unmet needs (28%), which are even more poorly satisfied, since only a quarter (26%) of these needs are satisfied through the use of a modern contraceptive method. Finally, the total demand in family planning among women from the wealthiest households appears moderately high at 62% (unweighted average) and higher than among women from the poorest households, i.e., 48%, but again there are great variations from one country to the next.

To sum up, the low levels of contraceptive use, the rather weak demand for family planning, and the high percentage of unmet needs at the national level, as well as the inequalities between women with respect to these variables can be explained again by the pervasive family norms favouring large families (Romaniuk 2011: 21-22). Indeed, desired fertility in SSA (i.e., the ideal number of children) remains very high even among young women and in many countries even among young women with secondary levels of education. In addition, one should not dismiss the importance of marriage at young ages and sometimes child-marriage as another explanatory factor for the high fertility levels observed in SSA. To a large extent, all this can be construed as a double denial of women's rights: the denial of access to methods and the denial of information on contraception, which translates into the lack of reproductive choices.

This situation is largely the consequence of the lukewarm commitment or lack of engagement vis-à-vis family planning on the part of governments and donors alike. So far only two governments in sub-Saharan Africa, i.e., Rwanda and Ethiopia, appear to have organized successful large-scale programs and/or campaigns in favor of family planning like those organized in several Northern African and Asian countries. Among eight countries surveyed in Western Africa, only half even had a government budget-line item for the procurement of contraceptives (USAID Deliver Project 2011).

Last but not least, persistent high fertility levels in most African countries cause numerous high-risk pregnancies (at least one pregnancy out of two in most cases), which are associated with the four "too's": pregnancies that too early, too often, too close, and too late. This translates into very high maternal mortality ratios, high under-five mortality rates, and high proportions of stunted children among the children who do survive. Moreover, the future of these children is compromised because they are less resistant to diseases and have more difficulties to learn at school (World Bank 2010: 14). These poor and undesirable outcomes affect more the poorest households and jeopardize the chances of most countries to achieve more inclusive growth and fulfill their development objectives.

D. Urbanization and Mega-Cities

Between 1960 and 2010, the urban population of Africa increased by a factor of 8, increasing from 53 to 401 million. Despite this spectacular increase, the levels of urbanization in Africa remain low compared to other regions of the world. In 2010, it was estimated that about 40% of Africans were residing in

urban areas, but this percentage was only 23% in Eastern Africa, 41% in Middle Africa, 44% in Western Africa. It was higher than average in Northern Africa (51%) and Southern Africa (59%).

Rapid urbanization in Africa has led to 50 cities with more than a million inhabitants in 2010. Two with an estimated population of more than 10 million inhabitants: Cairo (11 million) and Lagos (10.8 million). In 2010, the United Nations identified 73 African cities with more than 750,000 inhabitants, whose population was projected to surpass one million by 2025, the end-year of the UN projections for these cities (United Nations 2012a). A third (17) of the 53 countries studied did not have a city with more than 750,000 inhabitants in 2010. Among the 36 other countries, 23 had one such city and 13 countries had several (see Annex 2); Nigeria had 14, South Africa 7, Morocco 6 and the Democratic Republic of Congo 5. Nine other countries had two large cities: Kenya, Mozambique, Angola, Cameroon, Congo, Algeria, Egypt, Côte d'Ivoire, and Ghana.

III. Future Population Growth

Africa's population reached the mark of one billion persons in 2009 and the entire continent is expected to have a population ranging from 1.9 to 2.2 or 2.5 billion people by 2050, according to the 2010 United Nations Word Population Prospects: Low, Medium, and High fertility variants, respectively (United Nations 2011).

A. Factors of Future Population Growth

In the forthcoming decades, the region's population (especially in Eastern, Middle, and Western Africa) is likely to continue to experience rapid rates of population growth, for two major reasons.

First, *mortality levels*, which are still high, are expected to continue to decrease. Between 1980 and today, infant and child mortality levels have declined by roughly half in Africa, particularly in sub-Saharan Africa. This is due to decisive exogenous interventions such as vaccination campaigns, oral-rehydration therapy programs, large-scale distribution of impregnated malaria bed-nets, the provision of nutritional supplements, and comprehensive sanitation programs. However, despite recent progress in reducing under-five mortality levels, there is still much room for improvement. Moreover, progress on adult mortality has been less spectacular and many SSA countries must now confront the dual pattern of communicable *and* non-communicable diseases (NCDs). Northern African countries must face mostly the challenge of NCDs, which is also linked to the aging of their population.

In addition, some SSA countries have been badly impacted by the HIV/AIDS epidemic, especially Southern Africa countries and their neighbors. Fortunately, the demographic impact of HIV/AIDS has been less severe than anticipated initially, although the HIV/AIDS epidemic has slowed down the rate of population growth in the most affected areas, i.e., Southern Africa, which have also experienced rapid fertility declines. Nonetheless, up to 2010, there has been no population decline due to HIV/AIDS in the countries severely affected by the epidemic (10% HIV prevalence or more), and the demographic impact of the epidemic has been negligible elsewhere (5% HIV prevalence and less). Actions to prevent the spread of HIV/AIDS and programs geared at reducing adult mortality are expected to continue in the foreseeable future. These interventions should foster continued population growth in most countries.

However, one should keep in mind that mortality rates could stop declining or even increase as happened in certain countries in recent decades, because of major climatic catastrophes, widespread famines, or severe political disruption. Despite these risks, it is unlikely that this situation would translate into population stagnation or decline, because with few exceptions, future demographic growth is primarily driven by high fertility and young age structures.

Second, *fertility levels* are still high in most countries and are only declining gradually. As discussed above, 40 countries out of 53, representing 78% of the total population have fertility rates ranging from 4 to nearly 8 children per woman. Among the 13 remaining countries with less than four children per woman, only three, i.e., Mauritius, Seychelles, and Tunisia, have reached replacement level fertility of 2.1 children per woman.

The future dynamic of the total population growth of each country will be essentially determined by future levels of fertility. Fertility will decline more or less rapidly, depending on several factors. First, initial levels of total fertility rates (TFRs) will determine future trends of population growth: the higher the initial levels of fertility, the higher the potential population growth by year 2050. Second, population growth in the forthcoming decades will depend also on the percentage of youth in the population (since these young people are moving into the union-marrying and fertility age brackets) and on the pace of demographic growth in this age group (phenomenon known as the *population momentum,* see below). Third, rates of increase of contraceptive prevalence rates (CPRs), especially for modern methods, will largely determine the future pace of decline of fertility. Fourth is the phenomenon of *population momentum* (also called *demographic momentum*), which is an *additional* population growth factor usually resulting from a youthful age structure. The population momentum is positive when the age structure is young and there are disproportionate numbers of people in childbearing age groups because of past high fertility levels. This is the case in most sub-Saharan African countries where about two-thirds of the total population is less than 25 years old. The population momentum is a powerful factor for future demographic growth. Even if a country with a young age structure would immediately reach replacement level fertility (i.e., about 2.1 children per woman – depending on current mortality patterns), its population would continue to grow for about 70 years and would still *double* in size (Word Bank estimates).

The very few African countries that have completed their demographic transition (Mauritius, Seychelles, and Tunisia) are now confronted with the arrival into retirement ages of the large cohorts of the 1950s. These countries, as well as other countries in Northern and Southern Africa will need in the near future to strengthen social security systems, pension schemes, and safety net programs to cope with the rapid increase of their population aged 65 years and more. Such actions and programs are needed because their *elderly support ratio* (i.e., the number of working-age people aged 15-64 or 20-64, divided by the number of persons 65+) will decrease in the coming decades. All African countries will experience rapid increases of their populations aged 65+ years in the coming decades, because of the unrelenting increase of their young population since the 1950s (Chesnais 1990). Therefore, all countries should already start to design social policies that will be needed to address this phenomenon, another legacy of the past neglect of the population factor (May 2012).

Two other factors need to be mentioned here: the *internal migration*[54] *and urbanization* patterns. The urban population will continue to grow even faster than the total population because of the ongoing urbanization process. Future growth of the urban population will be driven by both natural increase and rural-urban migration. The cities of the continent have now reached such sizes and youthfulness that their natural increases exceed rural urban migration, despite lower fertility levels in urban areas. But rural-urban migration will continue and it will be higher if fertility and population growth remain high in rural areas. In short, future growth urban population is not independent from rural population growth. Fertility levels will have a major impact on the dynamics of urban as well as rural populations. For example, in Côte d'Ivoire, Ghana, and Nigeria, where about half the population is already urban, urbanization will continue and urban populations will keep growing, even if fertility levels decline rapidly. In these countries, rural populations can stabilize in a less distant future (about 20 years) if fertility declines rapidly. In a few countries, however, urbanization rates are expected to level off.

B. Population and Urbanization Projections

This section presents for Africa the 2010 United Nations Population Division World Population Prospects, which were released in May 2011 as well as the 2011 UN World Urbanization Prospects, released in 2012.

As the United Nations stated, "future trends cannot be known with certainty". That is the reason why several projections variants are produced, including the constant-fertility variant, which indicates what would happen if fertility was staying at its 2005-2010 levels. Contrary to what many users of these projections believe, the Medium variant is not the most probable scenario. The United Nations also produces every two years a report "World Urbanization Prospects", using the results of the preceding year's World Population Prospects (United Nations 2012a). The 2011 World Urbanization Prospects provided estimates for urban areas and various cities of the world based on the Medium population estimates of the 2010 World Population Prospects. The 2010 World Population Prospects and the 2011 World Urbanization Prospects are based on the most recent population data available for each country in 2010 and 2011, respectively. The assumptions underlying the projections are presented in Annex 3.

1. Projected Total Population

Keeping these assumptions in mind, we can now examine the future total population of Africa in 2030 and 2050. First, between 2010 and 2030, the population of the continent will increase roughly from 1 billion in 2010 to 1.5 billion with the Low variant, or to 1.7 billion with the High variant (and up to 1.8 billion if we consider the Constant-fertility variant). Such an increase of at least half a billion people in 20 years represents a big challenge for many sectors, such as health, education, food security, and infrastructure.

By 2050, the continent's population will reach roughly 2 billion with the Low variant, 2.5 billion with the High variant, and up to 3 billion if we consider the Constant-fertility variant (see Table 4.1). Between 2010 and 2050, the share of Northern and Southern Africa in the total population will decrease

[54]It is expected that i*nternational migration* will have a negligible impact on population growth and dynamics, except in small island-settings where emigration plays a safety-valve function.

markedly from 21% to 13% and from 6% to 3% respectively. By contrast, the total share of Eastern, Middle, and Western Africa will increase from 74% to 84%.

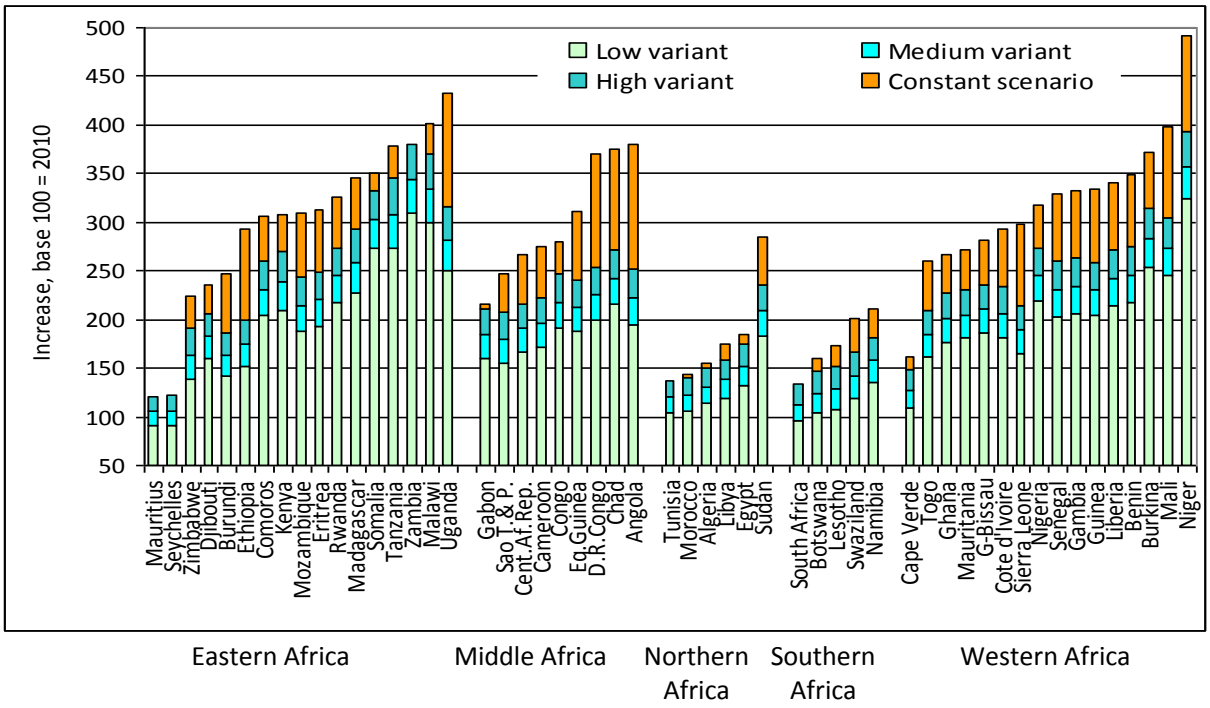
Of course, future total population increases between 2010 and 2050 vary from one country to another as seen in Figure 4.7. With the Low variant, most countries of Eastern, Middle, Western Africa and Sudan will experience an increase in their total population from 50% to 100%. But with the High variant, these countries will experience at least a doubling of their population (and even a tripling if we consider the Constant-fertility variant). Only the Northern and Southern countries (with the exception of Sudan) and the three island-countries (Cape Verde, Mauritius, and Seychelles), which are already well advanced in their fertility transition, will experience lower increases.

Table 4.1: Projected total population by 2050 of Africa and African regions according to the variants adopted in the 2010 United Nations population projections

	2010	Low variant 2050	Medium variant 2050	High Variant 2050	Constant variant 2050
Total population (in thousands)					
Africa	1 020 650	1 929 690	2 189 117	2 466 930	2 993 939
Sub-Saharan Africa	811 721	1 650 342	1 867 560	2 099 714	2 594 286
% sub-Saharan Africa	*79.5%*	*85.5%*	*85.3%*	*85.1%*	*86.7%*
Eastern Africa	322 994	685 549	778 037	877 023	1 073 293
Middle Africa	126 689	245 146	278 350	313 955	441 545
Northern Africa	208 929	279 348	321 557	367 216	399 653
Southern Africa	57 780	56 680	67 327	79 083	81 199
Western Africa	304 257	662 967	743 846	829 652	998 250
Percentage in total population					
Africa	100.0%	100.0%	100.0%	100.0%	100.0%
Sub-Saharan Africa	79.5%	85.5%	85.3%	85.1%	86.7%
Eastern Africa	31.6%	35.5%	35.5%	35.6%	35.8%
Middle Africa	12.4%	12.7%	12.7%	12.7%	14.7%
Northern Africa	20.5%	14.5%	14.7%	14.9%	13.3%
Southern Africa	5.7%	2.9%	3.1%	3.2%	2.7%
Western Africa	29.8%	34.4%	34.0%	33.6%	33.3%

Source: United Nations 2011

Figure 4.7: Projected increase of total population between 2010 and 2050 (base 100 = 2010) of African countries according to fertility scenarios, by increasing order for each region



Source: United Nations 2011

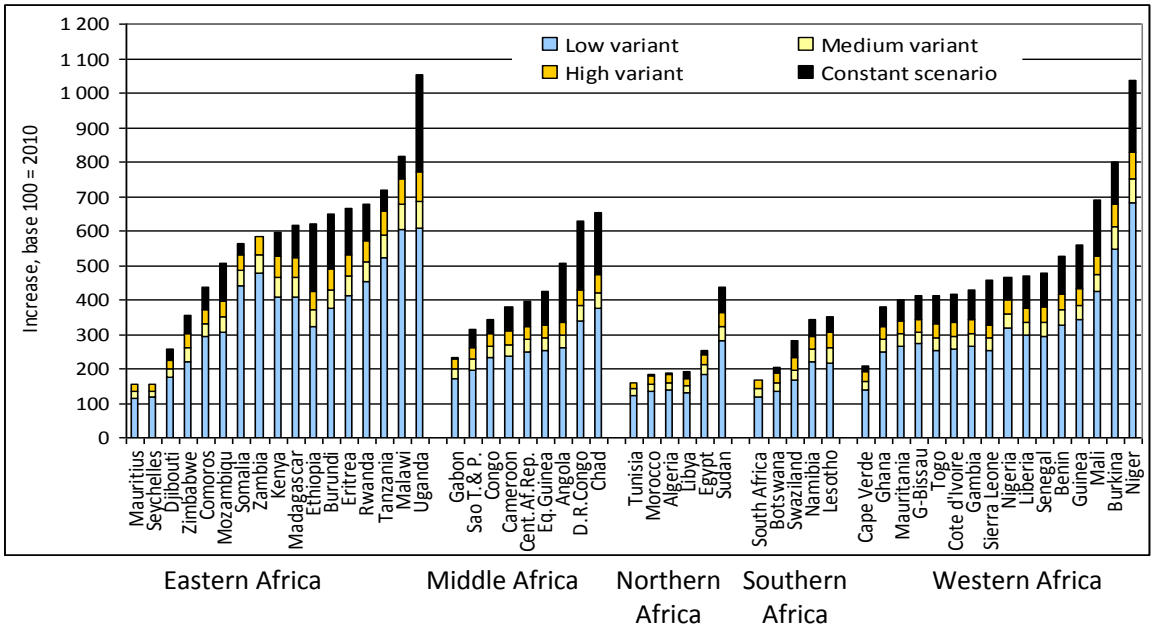
2. Projected Urban Population and Mega-Cities

The 2011 World Urbanization Prospects applied the projected percentages of urbanization only to the Medium variant projections, but in this chapter we have explored the combined impacts of increased urbanization and fertility decreases on future urban growth, according to the High, Medium, and Low, as well as the Constant-fertility variants. At the continental level, the urban population will increase from 400 million in 2010 to about 750 million in 2030 with the Low variant, or to nearly 800 million with the High variant, and above 800 million if we consider the Constant-fertility variant. These increases correspond more or less to a doubling of the urban population in the next 20 years. This represents a big challenge for governments and urban planners in terms of infrastructure, services, job creation, transportation, sanitation, and security.

By 2050, with nearly 60% of African people living in urban areas, the continent's urban population will reach between 1.1 billion with the Low variant, and 1.4 billion with the High variant (and up to 1.7 billion if we consider the Constant-fertility variant). This means that because the combined effects of increased urbanization and still high fertility levels, the African urban population will more or less triple in the next 40 years (or even quadruple if fertility declines are slower than anticipated in the High variant). But because of their initial lower levels of urbanization, the urban populations of Eastern, Middle, and Western Africa will grow more rapidly and they will be multiplied by a factor of 4 to 5 by 2050 (and more in the High variant). The urban population of these three regions will represent 82% of the urban population of the continent by 2050, compared to 65% in 2010.

Urban population increases between 2010 and 2050 will vary by country and sub-region (see Figure 4.8). Most Eastern, Middle, Western African countries and Sudan will see their urban populations multiplied by a factor of 3 to 7, depending on the fertility decline variant considered (and by a greater factor with the Constant-fertility variant). The increases will be more important in most Eastern countries, because they had the lowest urbanization rates in 2010. Conversely, increases will be more modest in Northern and Southern countries because they had generally higher urbanization rates in 2010. In these countries, urban populations will be multiplied roughly by a factor between 2 and 3 in the next 40 years.

Figure 4.8: Projected increase of urban population between 2010 and 2050 (base 100 = 2010) of African countries according to fertility scenarios, by increasing order for each region



Source: United Nations 2012

These rapid increases of urban populations will be associated with the advent of several cities of more than 5 million people, as well as mega-cities of more than 10 million people. The 2011 World Urbanization Prospects offer projections of the population of cities of more than 750,000 inhabitants in 2010 up to 2025. In this chapter, we have tried to explore the possible future size of these cities up to 2050. The results are presented in Table 4.2.

Table 4.2: Estimated population of African cities with more than 5 million inhabitants in 2010, 2030, and 2050

Country	City	% in urban population In 2010	Population Million in 2010	2030	2050	Ratio 2050/ 2010
Ethiopia	Addis Ababa	20.0%	2.9	***5.7***	**10.3**	3.5
Kenya	Nairobi	34.0%	3.2	***7.4***	**15.1**	4.7
Madagascar	Antananarivo	30.0%	1.9	4.7	***9.2***	4.8
Malawi	Lilongwe	33.0%	0.7	1.9	***5.2***	7.0
Somalia	Mogadishu	50.0%	1.4	3.9	***8.4***	5.9
Tanzania	Dar es Salaam	30.0%	3.4	***9.1***	**20.7**	6.1
Uganda	Kampala	30.0%	1.6	4.4	**10.4**	6.6
Zambia	Lusaka	35.0%	1.7	4.1	***9.4***	5.5
Angola	Luanda	47.0%	4.8	**10.2**	**15.5**	3.2
Cameroun	Yaoundé	25.0%	2.3	4.5	***6.8***	3.0
	Douala	25.0%	2.3	4.5	***6.8***	2.9
DR Congo	Kinshasa	36.0%	***8.4***	**17.3**	**30.6**	3.6
	Lubumbashi	6.8%	1.5	3.3	***5.8***	3.9
	Mbuji-Mayi	6.6%	1.4	3.2	***5.6***	3.9
Egypt	Cairo	31.0%	**11.0**	**16.4**	**23.0**	2.1
	Alexandria	13.0%	4.4	***6.9***	***9.6***	2.2
Sudan	Khartoum	41.0%	4.5	***8.2***	**14.2**	3.2
South Africa	Johannesburg	13.1%	3.8	***5.0***	**5.7**	1.5
	Cape Town	12.0%	3.5	4.6	**5.2**	1.5
	Ekurhuleni	11.5%	3.3	4.4	**5.0**	1.5
Burkina	Ouagadougou	50.0%	1.9	***6.0***	**12.9**	6.8
Cote d'Ivoire	Abidjan	42.5%	4.2	***8.0***	**12.5**	3.0
Ghana	Accra	21.0%	2.5	4.8	***7.5***	3.0
	Kumasi	17.0%	1.9	3.9	***6.0***	3.1
Guinea	Conakry	52.0%	1.7	3.8	***7.0***	4.1
Mali	Bamako	36.0%	1.9	4.5	***9.0***	4.6
Niger	Niamey	50.0%	1.2	3.9	**10.3**	8.4
Nigeria	Lagos	14.2%	**10.8**	**22.3**	**39.5**	3.7
	Kano	4.3%	3.3	***6.7***	**12.0**	3.7
	Ibadan	3.8%	2.9	***6.0***	**10.6**	3.7
	Abuja	3.0%	2.0	4.7	**8.3**	4.1
	Port Harcourt	2.6%	1.8	4.1	**7.2**	4.0
	Kaduna	2.1%	1.5	3.3	**5.8**	4.0
	Benin City	1.8%	1.3	2.8	**5.0**	3.8
Senegal	Dakar	60.0%	2.9	***6.1***	**10.5**	3.6
Number of	cities with more than	5 million	3	15	35	
		10 million	2	4	15	

Sources: United Nations 2012a and calculations of the authors

These results indicate that while Africa had only two mega-cities in 2010, i.e., Cairo (11 million) and Lagos (10.8 million), the continent might have four mega-cities and 11 cities of 5-10 million inhabitants by 2030, and 15 mega-cities and 20 cities with a population between 5 and 10 million people in 2050. These 15 mega-cities would represent 20% of the African urban population and 11% of the total population of the continent. This means that one urban African out of five would live in a mega-city (of more than 10 million people) in 2050, compared to 5% in 2010, and one African out of ten (11%) would live in a mega-city in 2050, compared to 2% in 2010. In 2050, the four largest cities could be (in four different regions): Lagos with nearly 40 million; Kinshasa, 31 million; Cairo, 23 million; and Dar es Salaam, 21 million. In Southern Africa, the largest city could be Johannesburg with 6 million people.

It is difficult to envision the magnitude of the problems that will be associated with the rapid urbanization of Africa and the emergence large cities and mega-cities. However, one should note that the difficulty of living in urban settings and large cities has long been compensated by the adoption of urban practices and the vitality of social networks. But these are weakening and the social control that regulated internal tensions has lost part of its strength. Having worked as a rather inclusive machine, African cities are now more and more a place of exclusion, especially from the modern labor market (Dubresson & Raison, 2003: 121). This exclusion process fosters the growing criminalization of many African urban economies.

3. Projected Population of Children and Youth

In 2010, there were 411 million children aged 0-14 years in Africa (155 million children aged 0-4 years and 256 million children aged 5-14 years). By 2030, under the Low fertility variant there will be 486 million (170 million aged 0-4 years and 316 million aged 5-14 years), but 626 million (227 million aged 0-4 years and 399 million aged 5-14 years) under the High fertility variant. By 2050, under the Low fertility variant there will be 520 million children aged 0-14 years (174 million aged 0-4 years and 346 million aged 5-14 years), but 839 million (302 million aged 0-4 years, and 537 million aged 5-14 years) under High fertility variant, that is 329 million more (see Table 4.3).

Table 4.3: Projected population aged 0-14 years by 2050 of Africa and African regions according to the variants adopted in the 2010 United Nations population projections

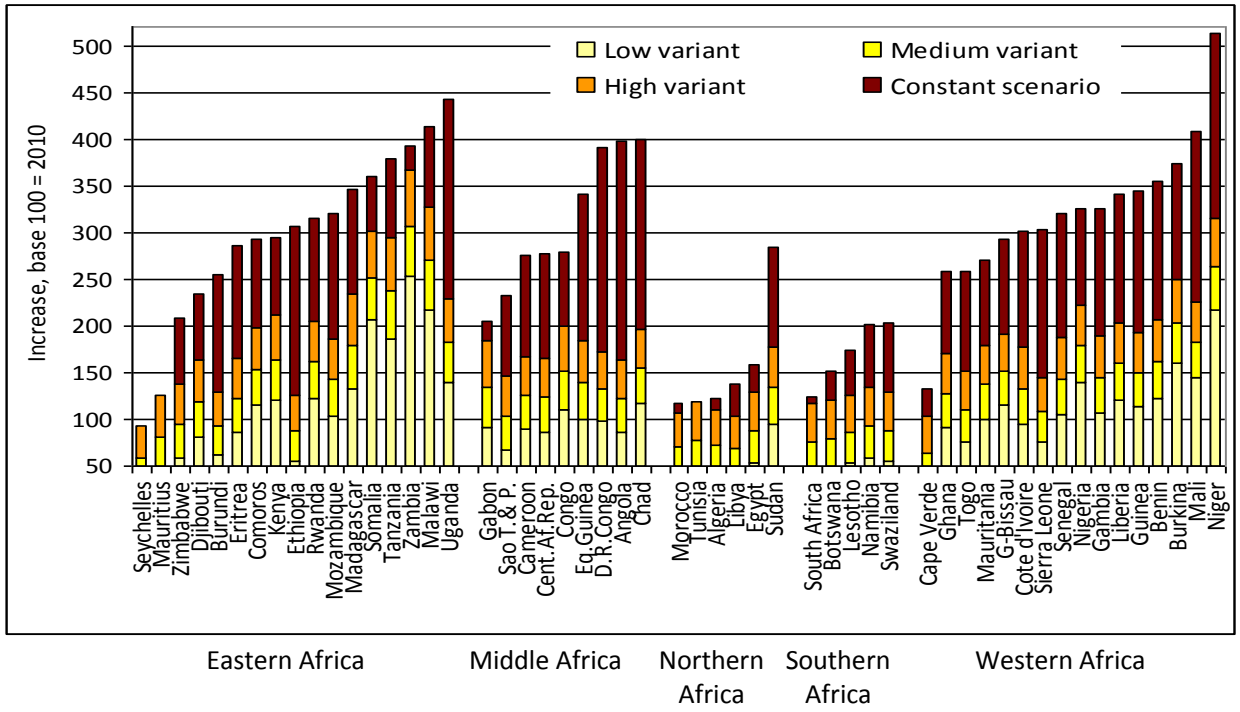
	2010	Low variant 2050	Medium variant 2050	High variant 2050	Constant variant 2050
Population aged 0-14 years (in thousands)					
Africa	411 265	519 780	670 595	838 717	1 238 240
Sub-Saharan Africa	345 292	473 880	603 481	747 109	1 122 545
% Sub-Saharan Africa	*84,0%*	*91,2%*	*90,0%*	*89,1%*	*90,7%*
Eastern Africa	139 885	199 153	254 570	316 117	462 583
Middle Africa	56 765	64 764	84 569	106 611	201 239
Northern Africa	65 974	45 900	67 114	91 608	115 695
Southern Africa	17 858	9 245	14 527	20 843	22 899
Western Africa	130 784	200 718	249 816	303 538	435 824
Increase 2010 - 2050					
Africa	2.65	3.35	4.32	5.41	7.98
Sub-Saharan Africa	2.62	3.60	4.58	5.67	8.53
Eastern Africa	2.64	3.76	4.81	5.97	8.74
Middle Africa	2.59	2.96	3.87	4.87	9.20
Northern Africa	2.81	1.96	2.86	3.91	4.93
Southern Africa	2.98	1.55	2.43	3.48	3.83
Western Africa	2.57	3.95	4.91	5.97	8.57
Percentage in total population aged 0-14 years					
Africa	100.0%	100.0%	100.0%	100.0%	100.0%
Sub-Saharan Africa	84.0%	91.2%	90.0%	89.1%	90.7%
Eastern Africa	34.0%	38.3%	38.0%	37.7%	37.4%
Middle Africa	13.8%	12.5%	12.6%	12.7%	16.3%
Northern Africa	16.0%	8.8%	10.0%	10.9%	9.3%
Southern Africa	4.3%	1.8%	2.2%	2.5%	1.8%
Western Africa	31.8%	38.6%	37.3%	36.2%	35.2%

Source: United Nations 2011.

The Low fertility variant will lead to a "fiscal gain" resulting from a lower financing requirement for the expenses for health and education, etc. in the next 40 years. This gain can be used to improve the quality of children's health and education, as well as to invest more in young adult education, vocational training, and job creation. Therefore, the adoption of policies and programs aimed at slowing down future population growth constitutes a crucial strategic choice, both at national and regional levels, which should not be overlooked by African leaders, as has been the case in the past.

At the country level, the size of this "fiscal gain" will depend on the future course of fertility in each country. The urgency to adopt policies and programs aimed at slowing down future population also varies from one country to another. Let us consider first the future numbers of children aged 0-4 years. Between 2010 and 2050, under the high fertility variant, the number of children aged 0-4 years will double (and even triple in some cases) in a third (18) of the countries and increase by 50% to 100% in another third (17) of the countries, primarily in Eastern, Middle, and Western Africa (see Figure 4.9). By contrast, under the Medium fertility variant, the number of children aged 0-4 years will decrease, stabilize (as happened in many emerging market countries) or increase by less than 50% in two-thirds (34) of the countries. However, the number will more than double in a third (19) of the countries, mainly in countries with "slow and irregular or very slow and/or incipient" fertility transitions. Finally, with the Low fertility variant, the number of children aged 0-4 years will decrease in most countries (47 out of 53), or will stabilize or increase by less than 50%.

Figure 4.9: Projected increase of population aged 0-4 years between 2010 and 2050 (base 100 = 2010) of African countries according to fertility scenarios, by increasing order for each region



Source: United Nations 2011.

Similar results are found with future numbers of children aged 5-14, but these results are somewhat amplified. For example, under the High fertility variant, the number of children aged 5-14 will double or triple in almost half (24) of the countries. Similarly, under the Medium fertility variant, the number of children 5-14 will continue to increase by more than 50%, and it will more than double in more than a half (29) of the countries.

These results indicate clearly the urgency of launching programs and actions to slow down the growth of the population, especially in the countries with "slow and irregular" or "very slow and/or incipient"

fertility transitions, which represent nearly 60% of the continent's population and 70% of the population of sub-Saharan Africa. This is all the more important since these countries are generally those that still have very high maternal and child (under 5 years) mortality levels. Indeed, these countries are confronted today with the need to improve the coverage of maternal and health care and, at the same time, they have to expand their health and education services to respond to the needs of a continuously growing number of children and pregnant woman, and maintain adequate infrastructure and equipment as well as sufficiently trained personnel. Such programs and actions will have an impact in a relatively short term provided they are adopted right away.

4. Projected Labor Force

The impact of programs and actions to slow down population growth on the labor force will not be as rapid. In fact, the number of youth entering the labor force will continue to grow rapidly because most future workers (aged 15-64 or 20-64, depending on the definition retained) are already born. The same is even truer for the elderly people, since all the people who will be 65+ by 2050 are all already born. As a result, the dependency ratio (number of dependents aged less than 15 or 20 years and 65+ divided by the working age population aged 15-64 or 20-64) will decrease and be more favorable to economic growth only if the relative importance of the youth in the total population declines rapidly (as envisioned for instance in the Low fertility variant) (see below).

Today, in all but three African countries, the youth aged 15-29 represents a huge proportion, namely more than 40% of the adult population (above age 15), a phenomenon known as the "youth bulge". It will take some time to reduce this proportion. By 2030, with the Low fertility variant only 15 countries (about a quarter) that are more advanced in their fertility transition will have a percentage below 40% of 15-29 years old. But by 2050, most countries (45 out of 53) can hope to get rid of their "youth bulge" if they follow the Low fertility variant. However, with the High fertility variant, half of the countries (26) will still have more than 40% of 15-29 year olds in their adult population.

As already mentioned, the dramatic increase in the number of youth and the corresponding jobs required will be the biggest challenge most countries of the region will need to confront during the next decades. Crude estimates of new arrivals on the African labor market can be derived from the number of youth aged 15-24 years. They were estimated at 205 million in 2010. By 2030, they will reach 293 million under the Low fertility variant, and 311 million under the High fertility variant. The difference between the two variants is minimal, but the increase in the next 20 years of about 100 million youth is important.

By 2050, the number of youth aged 15-24 years will reach 331 million under the Low fertility variant and 452 million under the High fertility variant (see Table 4.4). In this case, the difference is important (120 million) and this is largely the result of higher numbers of births between 2025 and 2034, resulting from the higher fertility of the High variant compared with the Low variant. If we assume that most of these youth will enter the labor market during the 10 years, when they are 15-24 years old, and if we take a participation rate of 70%, this corresponds today to about 14 million jobs to be created every year for the entire continent. With the same assumptions, the annual jobs needed by 2030 will be around 21 to 22 million for both the Low and High variants. However, by 2050 the annual jobs needed under the Low

variant will be 23 million, a considerable figure, but which remains close to the 2030 figure (a consequence of the stabilization of the number of births starting in the 2030s with the Low variant). By contrast, under the High variant the number of jobs to be created annually will continue to increase and reach 32 million by 2050, more than double the number of jobs needed today. Clearly, an accelerated fertility transition would translate into reduced pressure on the labor market in the future.

Table 4.4: Projected population aged 15-24 years by 2050 of Africa and African sub-regions according to the 2010 United Nations population projections

	2010	Low variant 2050	Medium variant 2050	High variant 2050	Constant variant 2050
Population aged 15-24 years (in thousands)					
Africa	205 063	331 121	391 063	452 085	550 878
Sub-Saharan Africa	163 808	296 708	346 286	396 774	488 432
% Sub-Saharan Africa	*79,9%*	*89,6%*	*88,5%*	*87,8%*	*88,7%*
Eastern Africa	66 554	122 960	143 982	165 373	202 808
Middle Africa	25 563	44 146	51 863	59 742	83 609
Northern Africa	41 255	34 413	44 777	55 311	62 446
Southern Africa	11 795	7 806	10 491	13 252	13 776
Western Africa	59 895	121 795	139 950	158 408	188 239
Increase 2010 - 2050					
Africa	1.00	1.61	1.91	2.20	2.69
Sub-Saharan Africa	1.00	1.81	2.11	2.42	2.98
Eastern Africa	1.00	1.85	2.16	2.48	3.05
Middle Africa	1.00	1.73	2.03	2.34	3.27
Northern Africa	1.00	0.83	1.09	1.34	1.51
Southern Africa	1.00	0.66	0.89	1.12	1.17
Western Africa	1.00	2.03	2.34	2.64	3.14
Percentage in total population aged 15-24 years					
Africa	100.0%	100.0%	100.0%	100.0%	100.0%
Sub-Saharan Africa	79.9%	89.6%	88.5%	87.8%	88.7%
Eastern Africa	32.5%	37.1%	36.8%	36.6%	36.8%
Middle Africa	12.5%	13.3%	13.3%	13.2%	15.2%
Northern Africa	20.1%	10.4%	11.5%	12.2%	11.3%
Southern Africa	5.8%	2.4%	2.7%	2.9%	2.5%
Western Africa	29.2%	36.8%	35.8%	35.0%	34.2%

Source: United Nations 2011.

The biggest challenge in this respect will be in Eastern, Middle, and Western Africa where the number of youth aged 15-24 years will double in the next 40 years under the Medium variant (and will triple, if we consider the Constant variant) with only a slightly less rapid increase under the Low variant and a slightly

more rapid increase with the High variant (a consequence of the fact that youth aged 15-24 years by 2050 will be those born between 2025 and 2034, thus during a period when the fertility transition will still be far from completed in most countries). Conversely, in Northern and Southern Africa, where the fertility transition is already well advanced, the number of youth aged 15-24 years by 2050 will be more or less the same as in 2010 and may even decrease under the Low variant. These trends are likely to have consequences on international migration trends in both regions. In Northern Africa, traditionally affected by large outward movements, the pressure to leave the region may lessen. In Southern Africa and in particular in South Africa, the stabilization of the number of people aged 15-24 may become an incentive for further immigration from neighboring countries.

It should be noted that we defined in this chapter the working age population as the numbers of those in age group 20 to 64, in order to take into account the need to provide for *secondary* education for the majority of the youth up to their 20th anniversary.

In 2010, the working age population aged 20-64 was estimated at 466 million for the whole continent, and at 353 million for Sub-Saharan Africa. By 2030, it will reach 774 million for the whole continent (a 66% increase), and 616 million for Sub-Saharan Africa (a 74% increase). The figure is the same for all fertility variants (since those aged 20-64 years in 2030 were 0-44 years old in 2010). By 2050, the 20-64 years old will reach 1.097 billion with the Low fertility assumption, and 1.249 billion with the High fertility, that is 152 million more. In both cases, the increases between 2010 and 2050 are huge: 2.4 times and 2.7 times the 2010 number, respectively (see Table 4.5). These increases are higher for Eastern, Middle, and Western African where the numbers of people aged 20-64 years will more of less triple between 2010 and 2050. In Northern and Southern Africa, increases will be much more modest, 70% and 30%, respectively, for the Medium variant.

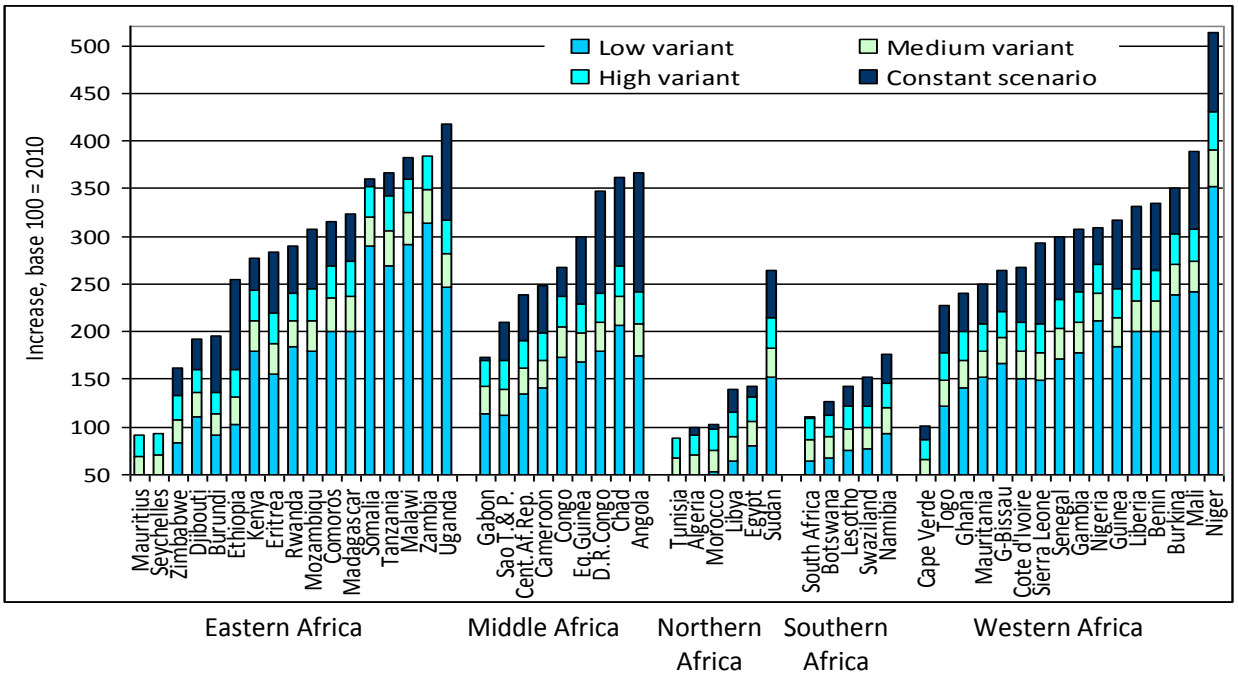
Table 4.5: Projected population aged 20-64 years by 2050 of Africa and African regions according to the 2010 United Nations population projections

	2010	Low variant 2050	Medium variant 2050	High variant 2050	Constant variant 2050
Population aged 20-64 years (in thousands)					
Africa	465 511	1 097 068	1 172 957	1 249 000	1 315 553
Sub-Saharan Africa	353 227	925 003	985 284	1 045 699	1 108 301
% Sub-Saharan Africa	*75,9%*	*84,3%*	*84,0%*	*83,7%*	*84,2%*
Eastern Africa	137 558	381 917	407 399	432 930	459 961
Middle Africa	52 419	144 249	153 373	162 522	180 903
Northern Africa	112 284	172 064	187 673	203 301	207 252
Southern Africa	31 417	37 172	41 143	45 125	44 809
Western Africa	131 833	361 664	383 369	405 123	422 628
Increase 2010 - 2050					
Africa	1.00	2.36	2.52	2.68	2.83
Sub-Saharan Africa	1.00	2.62	2.79	2.96	3.14
Eastern Africa	1.00	2.78	2.96	3.15	3.34
Middle Africa	1.00	2.75	2.93	3.10	3.45
Northern Africa	1.00	1.53	1.67	1.81	1.85
Southern Africa	1.00	1.18	1.31	1.44	1.43
Western Africa	1.00	2.74	2.91	3.07	3.21
Percentage in total population aged 20-64 years					
Africa	100.0%	100.0%	100.0%	100.0%	100.0%
Sub-Saharan Africa	75.9%	84.3%	84.0%	83.7%	84.2%
Eastern Africa	29.5%	34.8%	34.7%	34.7%	35.0%
Middle Africa	11.3%	13.1%	13.1%	13.0%	13.8%
Northern Africa	24.1%	15.7%	16.0%	16.3%	15.8%
Southern Africa	6.7%	3.4%	3.5%	3.6%	3.4%
Western Africa	28.3%	33.0%	32.7%	32.4%	32.1%

Source: United Nations 2011

These regional figures are the result of the evolution at the country level. Increases in the numbers of youth aged 15 to 24 years between 2010 and 2050, age of arrival on the labor market, can be seen in Figure 4.10. Most countries of Northern and Southern Africa and the island-countries, which are more advanced in their fertility transition, will see the numbers of their 15-24 years old decrease with the Low fertility variant, but remain more or less the same with the High fertility variant. In most other countries, the numbers of 15-24 years old will increase by about 50% with the Low fertility variant, but double (and even triple in the case of Burkina Faso, Mali, and Niger) with the High fertility variant.

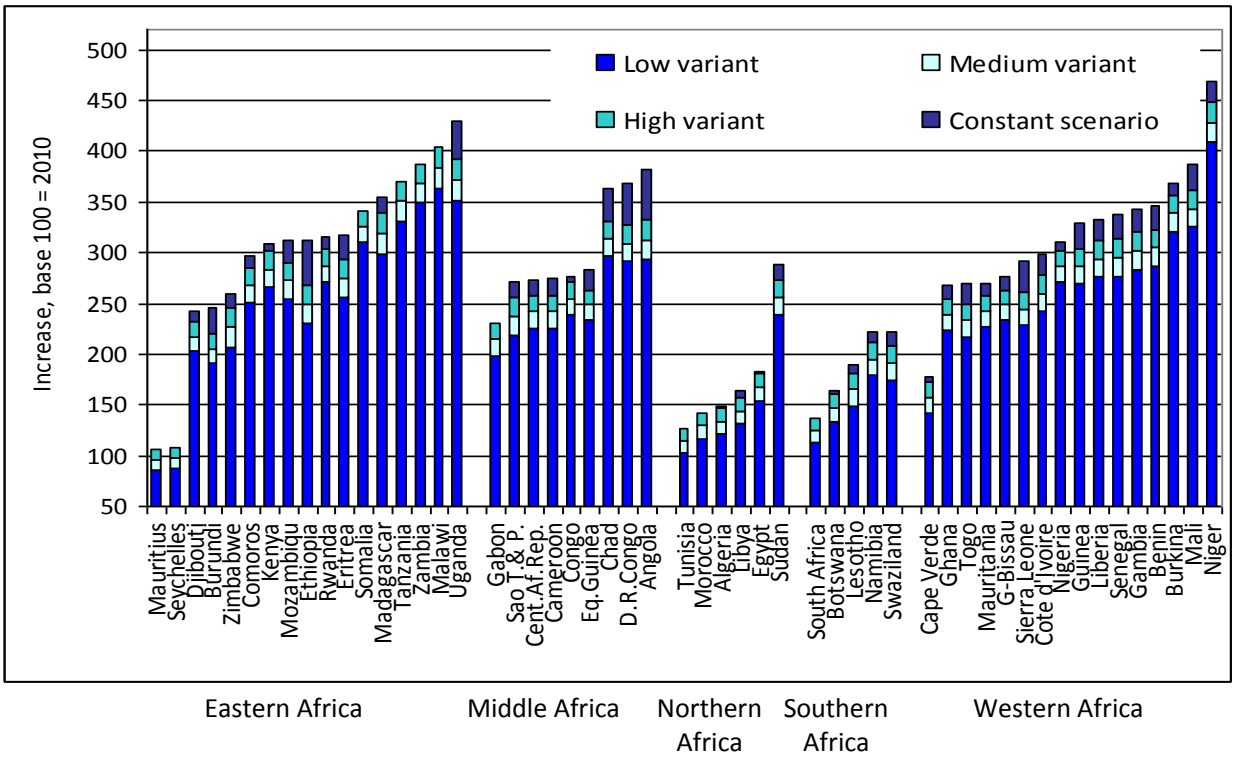
Figure 4.10: Projected increase of population aged 15-24 years between 2010 and 2050 (base 100 = 2010) of African countries according to fertility scenarios, by increasing order for each region



Source: United Nations 2011.

Increases in the size of the working age population aged 20-64 in each country can be seen in Figure 4.11. As already mentioned, many of the people who will be between 20 and 65 years by 2050 are already born. Therefore, the paths of the fertility decline between 2010 and 2050 will affect only marginally the size of the working age population in 2050. First, the labor force will remain more or less the same in four countries, i.e., Mauritius, Seychelles, Tunisia, and South Africa, whatever the fertility variant being considered. In the other countries of Northern and Southern Africa, it will increase roughly between 50 and 100%. However, in almost all the other Eastern, Middle, and Western African countries, the working age population will be multiplied by 2 or 3. It is clear that the challenges associated with these figures will be significant.

Figure 4.11: Projected increase of population aged 20-64 years between 2010 and 2050 (base 100 = 2010) of African countries according to fertility scenarios, by increasing order for each region



Source: United Nations 2011.

5. Projected 65+ Population and Dependency Ratios

At the same time, almost all African countries will experience dramatic increases of their elderly populations. In 2010, the number of persons aged 65 years and more was estimated at 36 million. By 2030, this number will double and reach 70 million, and quadruple by 2050, reaching 144 million. These numbers are the same for all fertility assumptions because all the 65+ years old in 2050 were already born in 2010 (see Table 4.6). But their share in the total population will vary according to the fertility variant. By 2050, the 65+ years old will represent 7.5% of the continent population with the Low fertility variant, but 5.8% with the High fertility variant, compared with 3.5% in 2010. However, the higher percentage, i.e., 7.5% in 2050, remains half of the equivalent percentage in Europe in 2010 (16.2%) and in all developed countries (15.9%). Therefore, Africa will definitely remain the youngest continent of the world in 2050. However, Northern Africa will have in 2050 a percentage of 65+ years old close to today's developed countries' percentages, from 12% with the High variant to 16% with the Low variant, followed by Southern Africa, i.e., from 8% with the High variant and 11% with the Low variant. But by 2050, Eastern, Middle, and Western Africa despite the rapid increases of their elderly, will still have very low percentages of 65+ years old in their population, ranging from 4% to 6%. At that time, developed countries will have between 23% and 29 % of 65+ years old in their population, and this will also be the case for the countries of Eastern Asia.

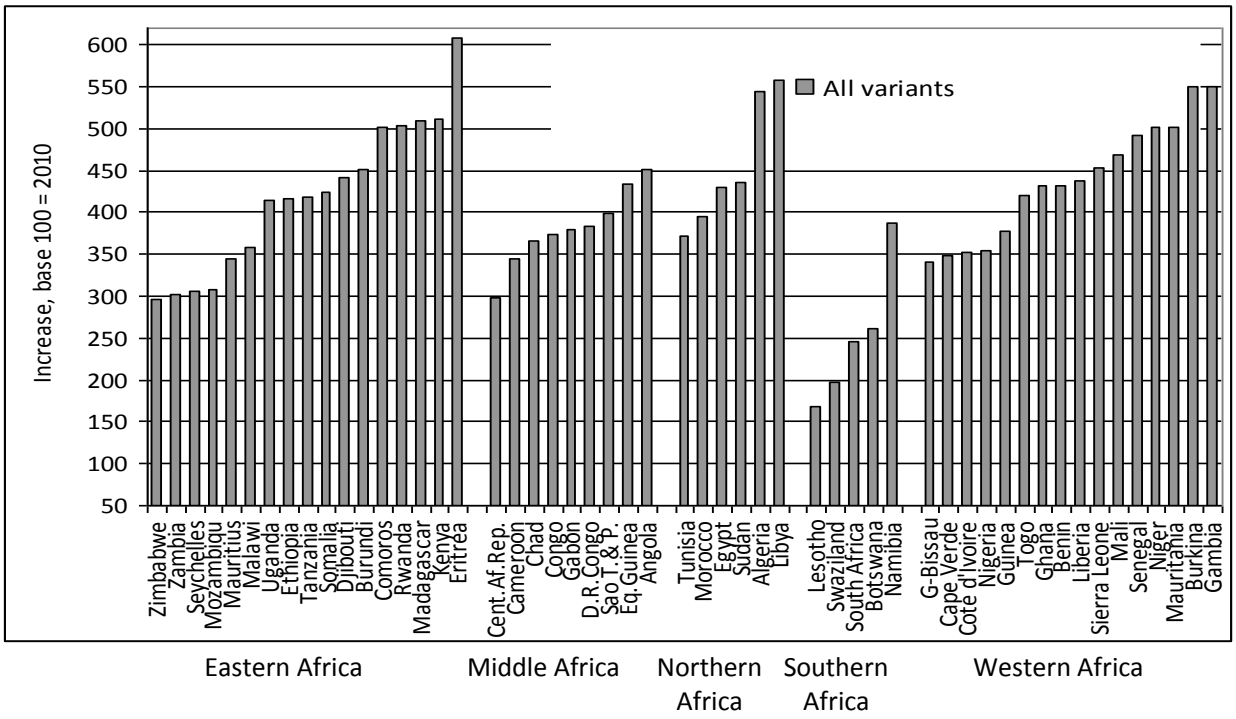
Table 4.6: Projected population aged 65 years and more by 2050 of Africa and African regions according to the 2010 United Nations population projections

	2010	All variants 2050	2010	All variants 2050	2010	All variants 2050
	Population aged 65 years + (in millions)		Increase 2010 - 2050		Percentage in total population aged 65 years+	
Africa	35,8	143,8	1.00	4.01	100,0%	100,0%
Sub-Saharan Africa	25,8	99,4	1.00	3.84	72,1%	69,1%
% Sub-Saharan Africa	*72,1%*	*69,1%*	-	-	-	-
Eastern Africa	9,9	41,3	1.00	4.16	27,7%	28,8%
Middle Africa	3,6	13,9	1.00	3.79	10,2%	9,6%
Northern Africa	10,0	44,3	1.00	4.43	27,9%	30,9%
Southern Africa	2,6	6,5	1.00	2.47	7,3%	4,5%
Western Africa	9,6	37,7	1.00	3.91	26,9%	26,2%

Source: United Nations 2011.

All African countries will be affected by the rapid increase of their population aged 65+, as it can be seen in Figure 4.12. Between 2010 and 2050, the lowest increases (between 50% and 250%) will be observed in 4 of the 5 Southern African countries. This is primarily the consequence of the deaths due to HIV/AIDS in these countries, which are the most affected by the epidemic. In all other countries, the population aged 65+ will be multiplied by a factor between 3 and 5. This phenomenon will call for specific socioeconomic policies.

Figure 4.12: Projected increase of population aged 65 years and over between 2010 and 2050 (base 100 = 2010) of African countries according to fertility scenarios, by increasing order for each region



Source: United Nations 2011.

The combined effect of the population dynamics just described will cause: a) varying proportions of youth in the total population depending on the fertility variant considered; b) important increases of the proportion of those aged 15-64 years or 20-64 years, i.e., the working age population; and c) modest increases in the proportion of the 65+ years old, despite the huge increase of their numbers. As a result, the dependency ratio (number of dependents aged less than 20 years and 65+, divided by the working age population aged 20-64 years) will decrease more or less, depending primarily on the rapidity of the fertility decline.

In 2010, the dependency ratio for Africa was 119 dependents for 100 working age persons aged 20-64, and it was 129 dependents for Sub-Saharan Africa, the highest in the world (see Table 4.7). These ratios were more or less double those of Eastern Asia (56), Europe (60), and Northern America (66), and much higher than the ratio in Latin America (78). By 2030, the African ratio will decline slightly to 91 with the Low fertility variant, but only marginally to 112 with the High fertility variant. By 2050, it will reach 76 with the Low fertility variant, and 97 with the High fertility variant. These levels remain well above the 2010 ratio in Eastern Asia and the developed countries. However, by 2050, because of the projected ageing of their population, the ratio of Eastern Asia will increase reaching between 76 and 87, and those of the developed countries will range from 86 to 98 (United Nations 2011). South Asia (including India, Bangladesh, Pakistan, Indonesia, Vietnam, etc.), which is already well advanced in its fertility transition (see Figure 4.2), may become the region with the lowest dependency ratios in the world in 2050 (i.e.,

between 55 with the Low fertility variant and 75 with the High fertility variant). Therefore, the countries of South Asia might be in a more favorable situation than Africa with respect to their dependency ratios.

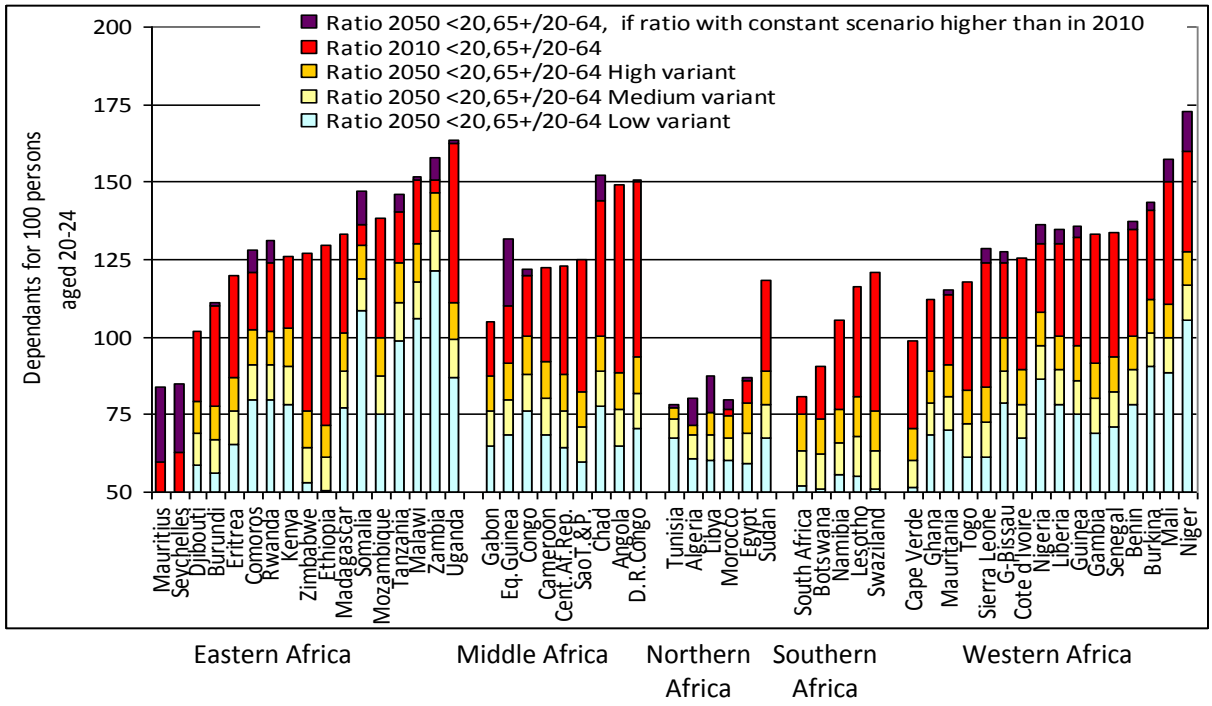
Table 4.7: Projected dependency ratios in percent (numbers of 0-19 years old and 65 years and more/20-64 years old) by 2050 of Africa and African sub-regions according to the 2010 United Nations population projections

		Low variant	Medium variant	High variant	Constant variant
2010	2050	2050	2050	2050	2010
Dependency ratio (>20 and 65+/20-64 years)					
Africa	119	76	87	97	128
Sub-Saharan Africa	129	78	89	100	133
Eastern Africa	135	79	91	103	133
Middle Africa	142	70	81	93	144
Northern Africa	86	62	71	81	93
Southern Africa	84	52	64	75	81
Western Africa	131	83	94	105	136

Source: United Nations 2011.

By region, in 2010 Eastern, Middle, and Western Africa had very high dependency ratios, above 130 dependents per 100 people of the working age population aged 20-64 years. By 2050, the dependency ratios will be at best around 80 under the Low variant, and around 100 under the High variant, that is about double the present dependency ratios observed in Eastern Asia (56). By 2050 and considering only the dependency ratio, these three regions will obviously still be far from a favorable demographic age structure allowing them to capture the demographic dividend. At the national level, the dependency ratios will decrease more or less rapidly depending on the initial levels of fertility and the importance of the fertility decreases projected (see Figure 4.13).

Figure 4.13: Number of dependents aged 0-19 years and 65+ years, for 100 persons aged 20-64 years for African countries by increasing order of 2010 value for each region in 2050



Source: United Nations 2011.

With the Low fertility variant, only 14 countries out of 53 will have dependency ratios in 2050 comprised between 52 and 59, comparable to the present dependency ratios of Eastern Asia, and half (28) of the countries of the continent will have dependency ratios in 2050 between 60 and 78. However, with the High fertility variant, the dependency ratio will be much higher: 9 countries will have dependency ratios between 70 and less than 80 and a third (19) of the countries will continue to have dependency ratios above 100, which means that they will still be is an unfavorable situation to save, invest, and create jobs.

This underlines again the urgency for governments and policymakers to seriously take into account the population dimension into their development planning, and for the countries still far from completing their fertility transition, to accelerate their fertility decline.

IV. Demographic Vision for 2050

Fulfilling a vision of prosperity and inclusive growth for African by 2050 is intrinsically linked to the attainment of a modern demographic regime. The demographic picture that underlies the Vision for Africa for 2050 is that all African countries would have a “modern” demographic regime of low mortality and low fertility, like most emerging market economies today (Guengant 2009). A modern demographic regime corresponds to fertility levels between two or three children per woman and contraceptive prevalence rates (CPRs) between 50% and 65% (against 10% to 30% in about two countries out of three today).This would enable them to be in a position to capture a demographic dividend, realize inclusive growth, reduce poverty levels, and achieve economic convergence.

The goal of reaching a modern demographic regime by 2050 implies a convergence of the high levels of mortality and fertility observed today in most African countries, to those observed presently in the emerging countries but also in most other developing countries. For mortality, this assumes the pursuit of the mortality decline, not only of infant and child (under-five) mortality but also of adult mortality (especially through sustained efforts to reduce the impact of HIV/AIDS and major progress in the reduction of cardio-vascular mortality). For fertility, this implies reaching fertility levels between two or three children per woman.

Reaching these levels will imply that most African countries continue their efforts to reduce mortality levels, whilst at the same time implementing public policies to initiate, accelerate, and complete their fertility decline, depending on the specific situation of each country. This will be a daunting challenge and will require an extraordinary effort; it would imply that population growth in African countries follow the low variant.

Indeed, even if the countries were to follow the 2010 United Nations Medium fertility variant decline path, fertility levels in 2045-2050 would remain above 3 children per woman in 15 countries (out of 53), but in only seven countries if they were to follow the Low fertility variant, and, by contrast, in 30 countries if they were to follow the High fertility variant.

The demographic transition is usually accompanied by other major changes, namely the epidemiological transition, i.e., a shift in health patterns from communicable to non-communicable diseases (May 2012: 20-25). In addition, populations going through their demographic and epidemiological transitions do experience other broad-based socioeconomic changes. Generally, their economy shifts gradually from agricultural to industrial production, and eventually to a services-based economy. They also experience important migratory movements from rural to urban areas, which lead the majority of people to live in urban settings. International migratory movements do often occur as well, and the remittances sent by emigrants may have an important economic impact.

V. Agenda for Realizing the Vision

In this context and based on the analysis of past and present demographic trends and future population trends and characteristics as it can be envisioned using the 2010 and 2011 United Nations World Population and Urbanization Prospects, the measures necessary to realize the demographic vision for Africa in 2050 can be summarized, as follows:

- For all countries, there is a need to foster the decline of infant and child mortality rates and increase survival prospects for adults to entice people to prepare for their future, with an overall increase of life expectancies at all ages.

- *For the countries still far from achieving their fertility transition*, there is a need to trigger a much more rapid decline in fertility levels (total fertility rates) along with a much more rapid increase in the contraceptive prevalence rates (CPRs) (namely, realizing the contraceptive revolution). The ultimate goal will be to reach by 2050 total fertility rates of around 3 children per woman (or less) in all African countries.

- *For all countries, there is a need to attain or maintain favorable dependency ratios* as the result of the demographic transition, in particular for the youth below age 20, as compared to the working age population (age group 20 to 64). For those few countries that have completed or are close to completing their fertility transition, it is important that fertility remain around replacement levels, to avoid increases in the dependency ratio resulting from the expected increases in numbers of people aged 65 years and over.

- In order to accelerate the mortality and fertility transition and to achieve this 2050 demographic vision, sound policies and programs will be necessary. In this respect, the role of policies and leadership commitment is crucial (May 2005, 2012). In particular, two major policy shifts that should translate into vigorous, broad-based, and far-reaching interventions, are urgently needed:

    - First, there is a need for a much stronger commitment and engagement on population and family planning issues on the part of public authorities, civil society organizations, and international donors alike[55]. This stronger commitment must be based on the recognition not only of the benefits of family planning for improving maternal and health, but also for reasons of better economic and social planning. This commitment must be based also on the unambiguous recognition of everyone's rights of access to sexual and reproductive health services. For most countries, this implies more important and especially more regular funding flows for population and family planning programs over the next decades. For the 40 countries which are today still far from completing their fertility transition, and in particular in the 25 countries with "slow and irregular transition" or "very slow and/or incipient transition", this requires to setting programmatic objectives for family planning programs, in the form of rapid increases of contraceptive prevalence rates (CPRs). Such increases should be of at least 1.5 percentage points per year, as it has been observed in today's emerging market countries (see Figure 4.4). This will enable SSA countries to realize contraceptive revolution, since they must eventually reach CPRs of at least 60% in 2050 to reach "modern" and lower levels of fertility.

    - Second, there is a need for a much stronger drive toward the empowerment of women. This implies that a number of countries do enact legislative changes such as *inter alia* rising the legal age at marriage, adopting inheritance laws and/or practices that do not disadvantage women, adopting new *Family Codes* to guarantee equal rights and duties for males and females, and removing the husband's and/or parents' consent to allow women and young girls to have easy access to family planning services. This will require also the promotion of reproductive rights, while at the same time making sure that women and couples can exert their reproductive choices freely and without coercion. Furthermore, social, cultural and even religious norms will also have to evolve for a rapid fertility decline to happen.

[55] After almost 20 years of neglect of family planning internationally, a first step in the right direction was the July 2012 London Conference on Family Planning convened by the Department for International Development (DFID) and the Bill & Melinda Gates Foundation.

Broad-based and far-reaching interventions are urgently needed to accelerate the demographic transition, which will be initiated by rapid declines in fertility that in turn will bring about more favorable dependency ratios. The improvement of the dependency ratios will help strengthen human capital (i.e., education and health), provided sound policies and investments are put into place at the same time (see Beaujeu et al. 2011). This is one of the absolutely necessary conditions, along with adequate macroeconomic policies that are needed to fulfill a vision of prosperity and inclusive growth for Africa by 2050.

CHAPTER 5: POVERTY AND INEQUALITY

I. Introduction

There is broad consensus that the key determinants of sustained growth are effective political and economic institutions, an outward orientation, macroeconomic stability and human capital accumulation. However, what is also being increasingly recognized is that income equality is also, independently, an important pre-requisite for sustained growth . While some inequality may be a result of market economy in terms of incentives for investment and growth, too much inequality can be destructive to growth.

Asian experience indicates that even in countries like China and India where absolute poverty has been reduced on a sizeable scale, income inequality has increased and access to basic services remains spotty. This is leading to deep rethinking in these countries' planning agencies on how to ensure more inclusive growth. Research on growth without equity indicates that growth strategies are less likely to be successful without a commitment to equality of opportunity, including giving citizens a fair chance to participate in the growth process and to share the benefits of growth . Inequalities lead to (i) a dampening of the poverty reduction impact of growth; (ii) lowering the growth rate itself; (iii) a "hollowing out" of the middle class; (iv) a degrading of the capacity of a country's institutions, thereby nurturing corruption and rent seeking; (v) increased crime and violence; and (vi) undermining of social stability. Even "converging" African countries can have their growth efforts halted and even reversed if policymakers ignore inclusive policies and actions.

Inequality also reduces the length of "growth spells." Even the weakest of African economies can succeed in initiating growth spurts at high levels for a few years. What is rare is the ability to sustain growth over a long period. Most growth spells in developed countries and emerging Asia last at least ten years or more, whereas only about two-thirds of African spells do . This chapter summarizes the status of African countries' experience in alleviating poverty, reducing inequalities, and increasing access to opportunities. As the chapter concludes, while progress has been achieved in selected aspects of inequality in some countries during the past decade (2000-2010), a large portion of Africa continues to live in poverty and has experienced high levels of inequality of income and opportunities during much of the last two decades.

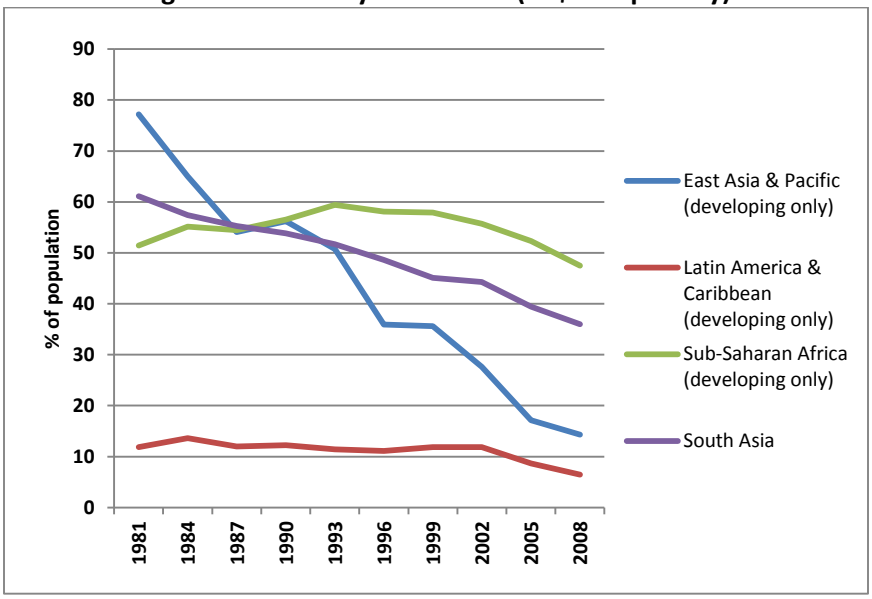
Following a brief discussion of poverty and inequality in Africa (sections II and III), this chapter focuses on the trends in inequality. This discussion (Section IV) is divided into four dimensions of inequality—those related to income, access to education, access to health, and access to water and sanitation services. Section V addresses the range of future outcomes related to poverty and inequality. The chapter concludes with an Action agenda.

II. Evolution of poverty in Africa

While Africa's economic growth during the last decade was more robust than during the 1990s, even taking into account the negative impact of the global financial and economic crisis on the economies, the number of poor (defined here as those with income less than $1.25/day) increased from about 205

million in 1981 to 386 million in 2008, an increase of about 180 million. This is in contrast to East Asia and the Pacific and South Asia regions where there was an appreciable decline in the incidence of poverty over the same period (Figure 5.1). Of the total number of poor in Africa in 2008, roughly 220 million (57 percent of the total poor) lived in five countries (Democratic Republic of Congo, Ethiopia, Madagascar, Nigeria and Tanzania). It is highly likely that most African countries will not meet their poverty reduction Millennium Development Goal by 2015.

Figure 5.1: Poverty Headcount (at $1.25 per day)



Source: World Development Indicators

While data are not available for most African countries, it is possible to obtain a rural-urban break down for the larger countries for the 2000s. This is shown in Figure 5.2. As can be noted, in all cases, rural poverty exceeds urban poverty incidence, indicating that poverty in these African countries is primarily a rural phenomenon.

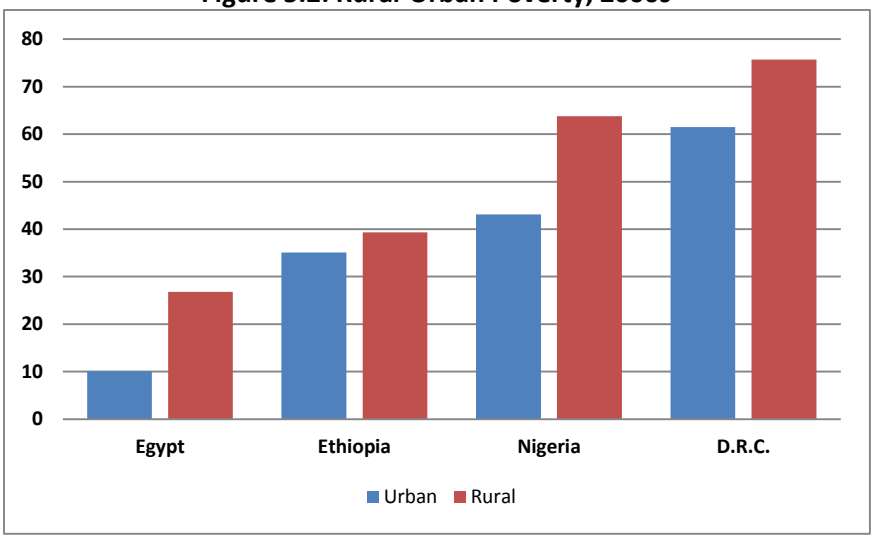
III. Inequality of outcomes and opportunities

A review of inequality needs to distinguish between inequality of outcomes and inequality of opportunities. Citizens use the resources at their disposal to maximize their well-being subject to constraints on their options. In assessing inequality, income and expenditure are commonly used to proxy the outcome of the process. However, focusing on just income or expenditure can be constraining. Over time, non-income dimensions like education and health have emerged in providing a multi-dimensional and inter-generational perspective on poverty and inequality[56]. Inequality of opportunity is the portion of inequality of outcome that can be attributed to differences in "individual circumstances"[57], related to race, region of birth, parental income, mother's education, etc. While some

[56] Juzhong Zhuang and Ravi Kanbur (2012): *Confronting Rising Inequality in Asia*, Theme chapter of Asian Development Bank's Asian Development Outlook 2012.
[57] J. Roemer (1998): *Equality of Opportunity*. Cambridge, Massachusetts, Harvard University Press.

income inequality may be inevitable and a part of the growth process, inequities of opportunities violate a sense of fairness and equity particularly when the individuals affected can do little about them.

Figure 5.2: Rural-Urban Poverty, 2000s



Source: World Development Indicators

IV. Recent trends of income inequality in Africa[58]

Of the 22 African economies with available data in 2000s, 16 had a Gini coefficient greater than 40, which is generally regarded as a threshold for "high inequality"[59]. The highest inequality was for South Africa with a Gini of 63.2, followed by Swaziland, Rwanda and Nigeria. At the other end of the spectrum, the country with the lowest inequality was Ethiopia with a Gini coefficient of slightly under 30, followed by Egypt and Mali (Figure 5.3).

Comparing Gini coefficients in Africa with those of developing countries in Asia, Africa's coefficients are on average higher than those in developing Asia: Africa's range of Gini coefficients of 29-63 is not as tight as developing Asia's 28-51. In fact, Africa's inequality is second only to that of Latin America, and the latter's inequality has been on a declining trend during the past decade.

With regard to changes in the Gini coefficient during 2000s, 14 out of the 22 African countries (accounting for almost half of Africa's population in 2010) experienced increases in the Gini coefficient. By contrast in Asia, 11 of 25 countries with comparable data experienced increases in inequality.

As an aggregate measure, the Gini coefficient may hide detailed patterns of differences across levels of expenditures. Table 1 provides the quintile ratios—the ratio of the per capita expenditure of the top 20 percent to that of the bottom 20 percent.

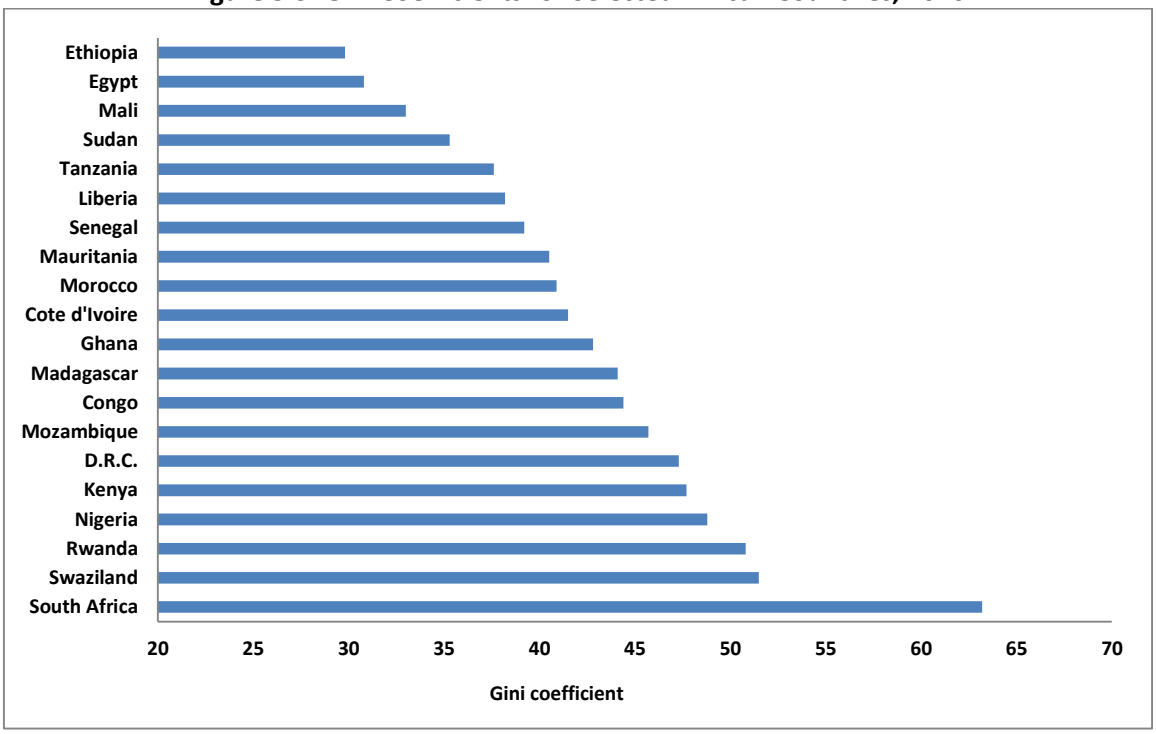
[58] Inequality can be estimated for per capita income or per capita expenditure. The former measure is generally higher than the per capita expenditure measure. For most African countries, as for most developing Asian countries, estimates are based on expenditure data, unlike those for Latin American and OECD countries which are based on income data. It is therefore more accurate to compare Africa's inequality measures to those of developing Asia.

[59] For convenience, the Gini coefficient is used here as a percentage rather than as a number between zero and 1.

During 2000s, out of 45 African countries for which data were available 15 countries had the top 20 percent of households earning more than ten times that of the bottom 20 percent. The mean quintile ratio for the 45 African countries was 10.6. This compares to a figure of 7.1 for the 32 Asian countries for which data were available over the same period.

Significantly, South Africa exhibits one of the highest inequalities in Africa on both the Gini measure as well as quintile comparison, its ratio on the latter count being above 20. When the ratio of the top versus the bottom decile is taken, the inequality is even more stark: the top 10 percent in South Africa earn about 44 times as much as the bottom 10 percent, only marginally better than Brazil.

Figure 5.3: Gini Coefficients for Selected African Countries, 2010



Source: World Development Indicators

In terms of trends in income inequality over time, the Gini coefficient for Africa as a whole increased (worsened) from 45 in 1990 to 46 in 2010. This level of inequality is well above the average for Asia's developing economies. During the 2000s, inequality grew markedly in Kenya, Nigeria, South Africa and Tanzania (Gini coefficients increased by at least 8 percent). It declined for Egypt, Cote d'Ivoire, Mali and Senegal.

A. Access to education

Education is a critically important element in non-income inequality. It is a self-perpetuating type of inequality, with poor education generally leading to lower income, and lower income in turn leading to poor education of children.

Africa has made significant strides in improving average achievements in education. It is a self-perpetuating type of inequality, with poor education generally leading to lower income, and lower income in turn leading to poor education of children.

Table 5.1: Comparison of Incomes of Top and Bottom Quintiles, 2000s

Top 20% / Bottom 20%	Countries
Above 20	Angola, Comoros, Namibia, S. Africa
10 to 20	Cape Verde, Central African Republic, Republic of Congo, Gambia, Kenya, Lesotho, Nigeria, Rwanda, Seychelles, Swaziland, Zambia
5 to 10	Benin, Burkina Faso, Cameroon, Chad, DRC, Cote d'Ivoire, Djibouti, Gabon, Ghana, Guinea, Guinea-Bissau, Liberia, Madagascar, Malawi, Mali, Mauritania, Morocco, Mozambique, Niger, Sao Tome, Sierra Leone, Sudan, Tanzania, Togo, Tunisia, Uganda
Below 5	Burundi, Egypt, Ethiopia

Source: World Development Indicators

Africa has made significant strides in improving average achievements in education. Over 30 African countries are on track to achieve universal primary education by 2015[60]. Table 5.2 provides data for ten African countries with the lowest primary completion rates in 1991.

Table 5.2: Primary Completion Rates for Selected African Countries (Percent of relevant age group)

	Total		Male		Female	
	1991	2010	1991	2010	1991	2010
Benin	22	63	30	74	14	53
Burkina Faso	20	45	25	48	15	42
Chad	18	33	29	41	7	24
Eritrea	18	40	21	43	15	36
Ethiopia	23	72	28	75	18	69
Guinea	17	64	24	75	9	53
Guinea-Bissau	5	68	7	75	3	60
Mali	9	55	12	61	7	50
Mozambique	26	61	32	66	21	55
Niger	17	46	21	52	13	40
Average for above	17	55	23	61	12	48

Source: Adapted from World Development Indicators

By 2010, all these countries showed significant improvement, on average moving from 17 percent to 55 percent. This improvement has been even more dramatic for girls, with a four-fold increase in the primary completion rates during the last two decades. Female students in Guinea-Bissau and Mali in particular made dramatic gains.

[60] Africa Progress Panel (2010): *Africa Progress Report 2010*

With more than half of the way through Africa's Second Decade of Education (2006-2015), many countries have increased budgetary resources allocated to education, including significant increases in Ethiopia, Kenya, Mozambique, and Senegal[61].

However, enormous challenges remain. Some 50 million African children—especially girls—from poor backgrounds and rural areas still do not have access to primary education. In many cases, the issue is not one of lack of public expenditures allocated to education. With the exception of Central African Republic, Chad, Guinea and Liberia, most African countries allocated between 3-8 percent of GDP to education in 2010 with Burundi and Lesotho setting aside 9 percent and 13 percent respectively. There are other factors such as school fees and other costs that continue to discourage school attendance. Enrolment inducing practices such as the provision of meals and sanitary pads at school are still not widespread enough. These circumstances may suggest that conditional cash transfer schemes like *Bolsa Familia* of Brazil and *Opportunidades* of Mexico may be warranted in some African countries. However, studies of South Africa's Child Support Grant (CSG), under which the state awards unconditional means-tested cash tranfers to caregivers of poor children, indicate that it is preferable to address the structural problems of the supply side of education and health rather than to consider imposing conditionalities that could further exclude poor children and their caregivers from these cash transfers[62].

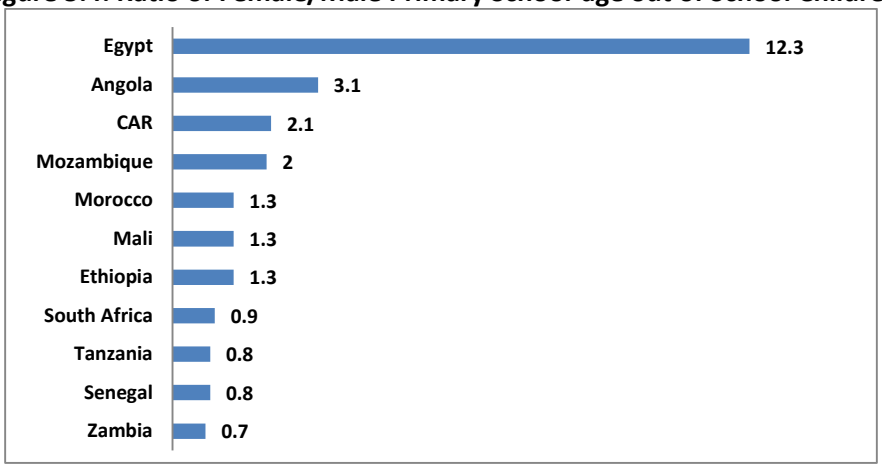
Deep-rooted inequalities are a barrier to universal primary education. Disparities linked to wealth, gender and location (especially rural versus urban) are holding back progress in many African countries. While the gender gaps are narrowing somewhat, they remain large in the continent. In many African countries, there are still fewer than nine girls in school for every ten boys. While enrolment rates are rising, millions of African primary school children drop out before completing a full primary cycle. Some 28 million pupils in Sub-Saharan Africa drop out each year.

In 2010, inequality in the ratio of out-of school children by gender was very wide in Africa. For example, the number of out-of school girls was more than three times as high for boys in Angola and Egypt, and about twice as high in Central African Republic and Mozambique (Figure 5.4).

[61] UNESCO (2010): Education for All Global Monitoring Report, Reaching the Marginalized

[62] See for example Frances Lund, Michael Noble, Helen Barnes and Gemma Wright (2002): *Is there a Rationale for Conditional Cash Transfers for Children in South Africa*? Working Paper Number 53.

Figure 5.4: Ratio of Female/Male Primary School-age out of School Children



Source: Adapted from World Development Indicators

Access to education gets increasingly more difficult as children get older. Secondary and tertiary intake rates in Africa remain as low as 32 percent and 5 percent respectively. Moreover there are serious issues of quality of education in almost all African countries, and teacher absenteeism in, for example, Uganda is around 35 percent. Africa scores poorly on global standardized tests, which are extremely low even in South Africa. These are issues that would need to be addressed if African labor is to face international competition.

B. Access to health

Like education, health is also an example of self-perpetuating inequality. Poor health affects the ability of the poor to increase their incomes. Even when children from poor families survive preventable diseases such as dysentery, malaria and respiratory infections, as adults they are likely to give birth to another generation of low-birth weight babies, reinforcing the vicious cycle of low human development. Africa has generally made good progress on life expectancy, with average life expectancy increasing by five years from 52 years in 1990 to 57 years in 2010 (Table 5.3). North African countries and Mauritius demonstrate not only relatively high levels—about 72 years—but also improvement since 1990.

On the other hand, there are significant differences among countries, with a person from Sierra Leone dying 28 years before his Tunisian counterpart. There are, moreover, eight countries (Cameroon, Central African Republic, Chad, Kenya, Lesotho, South Africa, Swaziland and Zimbabwe) which saw declines in their life expectancy over the past two decades. The drop was particularly steep for Lesotho, South Africa, Swaziland and Zimbabwe, in each of which the decline was around ten years. This large decline reflects the devastating impact of HIV/AIDS on these economies, although there are recent signs that life expectancy in these countries is starting to stabilize and increase.

Inter-country inequalities are also evident in infant mortality rates, with three countries (Libya, Mauritius and Tunisia) indicating low levels of around 13 per thousand live births, compared to very high levels for Angola, Central African Republic, Chad, Democratic Republic of Congo, Mali, and Sierra Leone (Table 5.3).

Table 5.3: Life Expectancy and Infant Mortality Rates

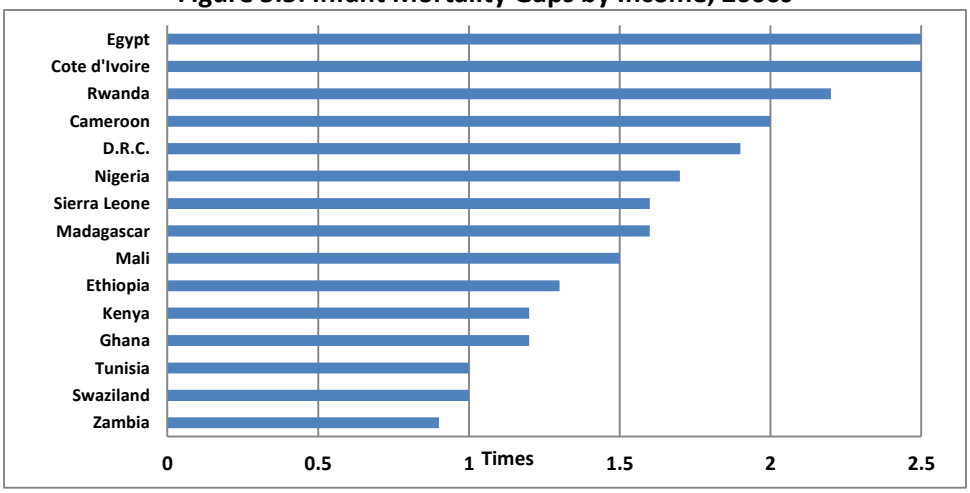
	Life Expectancy at Birth (years)		Infant Mortality Rate (per 1,000 live births)	
	1990	2010	1990	2010
Algeria	67	73	55	31
Angola	41	51	144	98
Botswana	64	53	46	36
Burkina Faso	48	55	103	93
Cameroon	53	51	85	84
Central African Rep.	49	48	110	106
Chad	51	49	113	99
Congo, Dem. Rep.	47	48	117	112
Cote d'Ivoire	53	55	105	86
Egypt	62	73	68	18
Ethiopia	47	59	111	68
Gambia	53	58	78	57
Ghana	57	64	77	50
Kenya	59	56	64	55
Lesotho	59	47	72	65
Libya	68	75	33	13
Mali	44	51	131	99
Mauritania	56	58	80	75
Mauritius	69	73	21	13
Morocco	64	72	67	30
Mozambique	43	50	146	92
Nigeria	46	51	126	88
Rwanda	33	55	99	59
Senegal	53	59	70	50
Sierra Leone	39	47	162	114
Somalia	45	51	108	108
South Africa	62	52	47	41
Sudan	53	61	78	66
Swaziland	59	48	70	55
Tanzania	51	57	95	60
Togo	53	57	87	66
Tunisia	70	75	39	14
Uganda	47	54	106	63
Zambia	47	48	109	69
Zimbabwe	61	50	52	51
Average	52	57	92	65

Source: World Development Indicators

There are major inequities in access to health by income. One can compare the infant mortality rate among the poorest quintile of the population with that of the richest quintile. In countries like Egypt and

Cote d'Ivoire, the chance of a poor infant dying is more than twice that of an infant born to a rich family (Figure 5.5).

Figure 5.5: Infant Mortality Gaps by Income, 2000s



Source: World Development Indicators

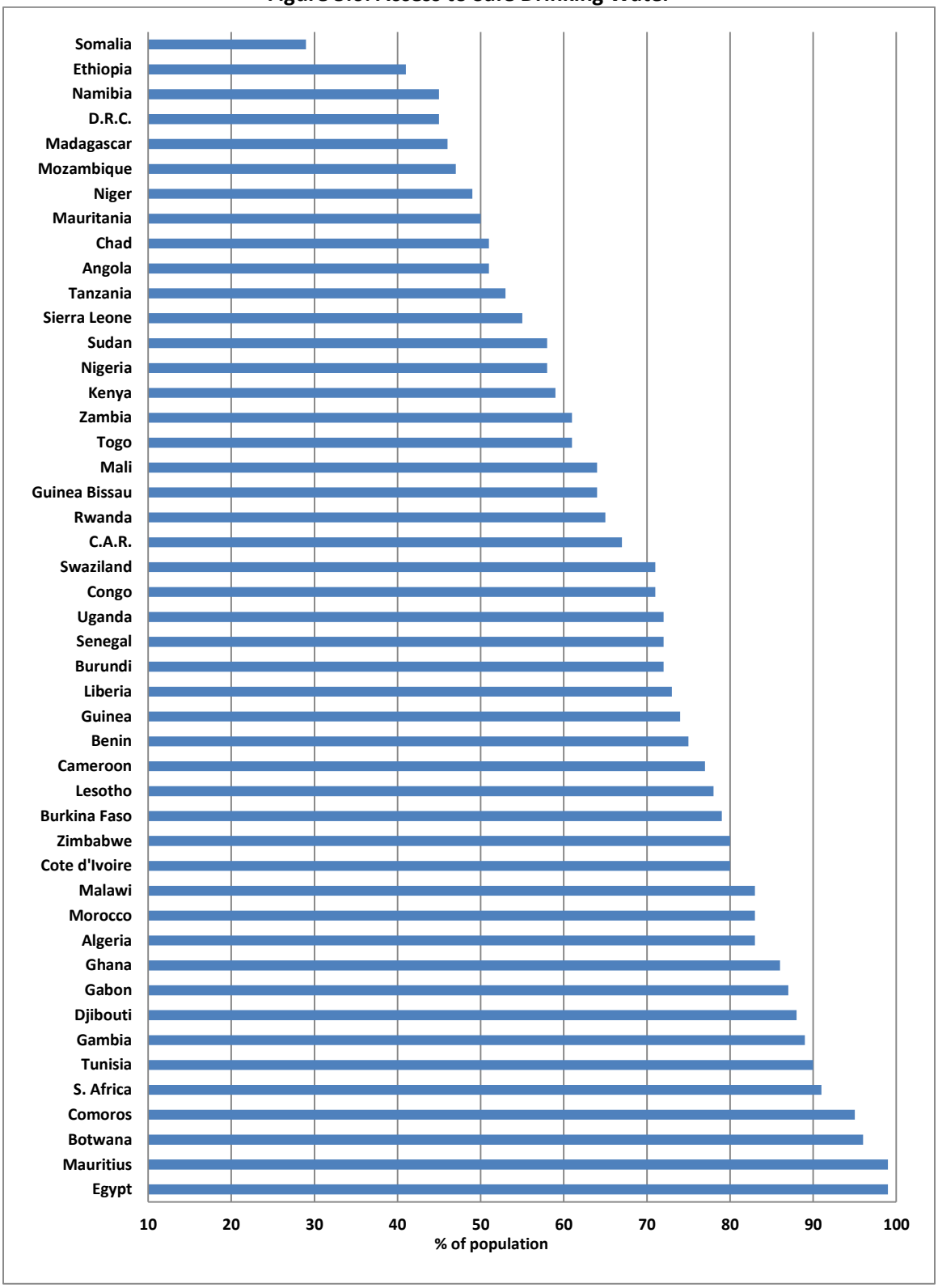
C. Access to water and sanitation

Overall the news for Africa (and the rest of the world) on access to improved source of drinking water is positive, with Africa's proportion of population with better access increasing from 61 percent in 1990 to 66 percent in 2010 (from 55 percent to 61 percent for Sub-Saharan Africa and from 89 percent to 92 percent for North Africa). Progress has been particularly impressive for six countries (Burkina Faso, Ghana, Liberia, Mali, Namibia and Uganda) with their proportion of 2010 population that gained access to improved water source since 1995 being above 40 Percent.

There are, however, several African countries, notably the Democratic Republic of Congo, Ethiopia, and Madagascar, where about 55 percent of the countries' population still lacks access to safe drinking water (Figure 5.6).

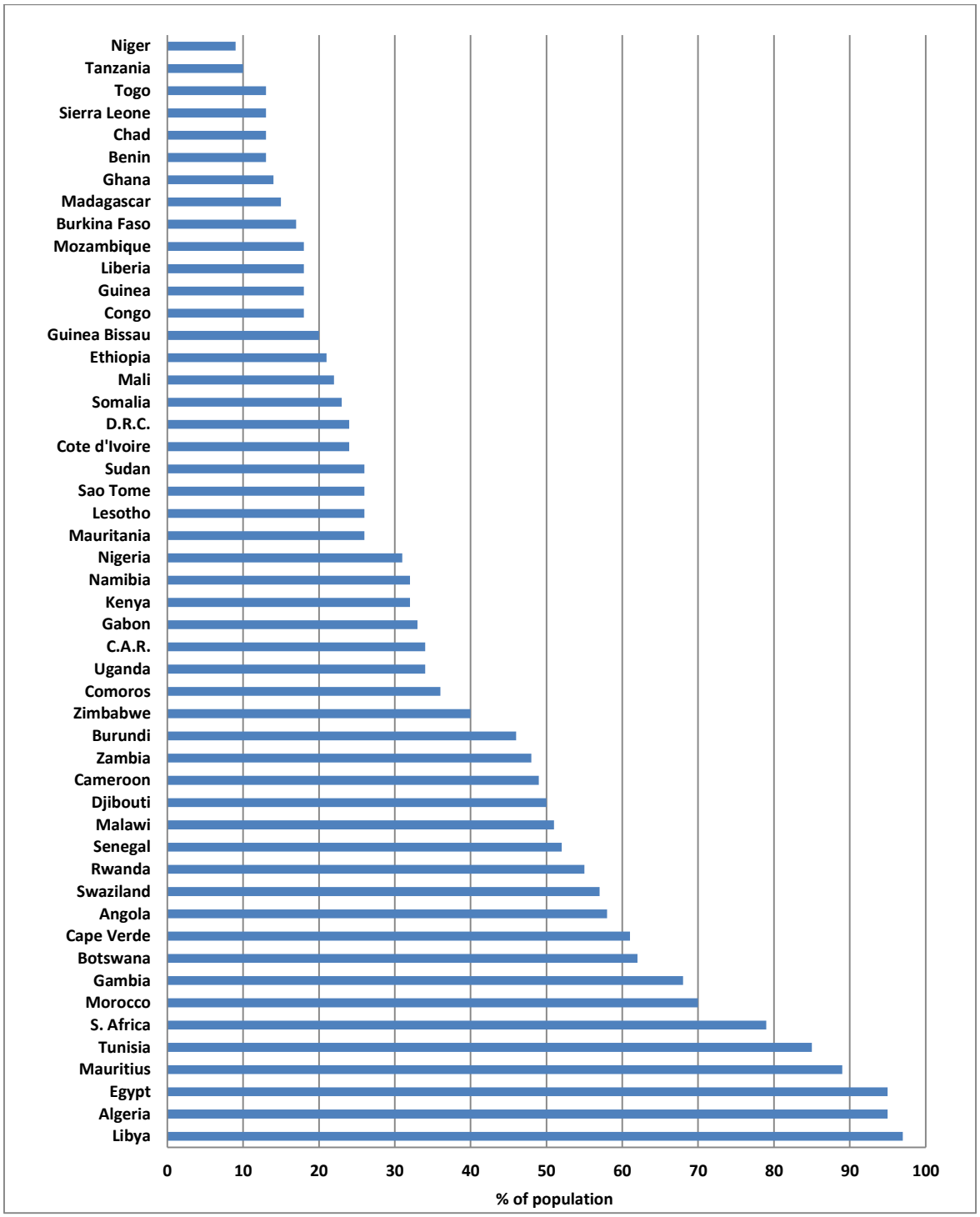
With regard to access to improved sanitation facilities, much of Africa is off-track in meeting the MDG sanitation target by 2015. In 2010, no less than 60 percent of Africa's population (70 percent in Sub-Saharan Africa and 10 percent in North Africa) was without access to improved sanitation facilities. This compares to the world figure of 37 percent. Access varies considerably by income and location (rural-urban). Countries such as Niger, Tanzania, Sierra Leone, Chad and Ghana are particularly low in coverage of sanitation facilities (Figure 5.7).

Figure 5.6: Access to Safe Drinking Water



Source: World Development Indicators

Figure 5.7: Access to Improved Sanitation



Source: World Development Indicators

V. Prospects for 2050

Sustained high growth as envisioned in the convergence scenario for 2050 would make a significant impact on poverty and on the share of Africa's population moving into the middle class.

A. Poverty in the future

Figure 5.8 shows the poverty rate and the number of Africans in poverty under the three scenarios presented in this report through 2050. In the Convergence Scenario, Africa's poverty rate declines below 5%, and even more strikingly, the poverty rate for fragile countries declines below 10%. In the Business as Usual Scenario, the poverty rates decline in a linear fashion, with African poverty around 17% in 2050. In the Downside Scenario, the poverty rate declines very little, dropping about 5 percentage points to around 32%.

Looking at the absolute amount of people in poverty in Africa presents a slightly different picture. Due to population growth, only the Convergence Scenario reduces the number of people in poverty in Africa, with a total in 2050 of about 50 million. In the Business as Usual Scenario, the number of people in poverty actually increases to 378 million in 2050. In the Downside Scenario, the number of Africans in poverty nearly doubles, increasing to 690 million. With the coming population explosion, reductions in poverty rates will need to be accelerated in order to reduce the number of Africans living in poverty.

B. Buildup of the middle class

Figure 5.9 shows Africa's middle class through 2050. These figures again highlight the benefits of convergence for Africa's future. In the Convergence Scenario, about 65% of Africa's population is in the middle class. The Business as Usual Scenario and Downside Scenario produce middle classes that are about 30% and 20% of the population, respectively. The Convergence Scenario therefore produces a middle class that is twice the size of that produced by the Business as Usual Scenario, and three times the size of that produced by the Downside Scenario.

In the Convergence Scenario, the total number of people in the middle class exceeds 1.4 billion in 2050, up from 125 million in 2012. The Business as Usual Scenario and Downside Scenario only produce middle classes of about 600 million and 400 million, respectively. The Convergence Scenario therefore represents a huge opportunity for Africa, not just in terms of raising incomes, but also by making Africa a significant region of middle class consumers on the global stage.

Figure 5.8: Poverty through 2050 (below $1.25 PPP per day)

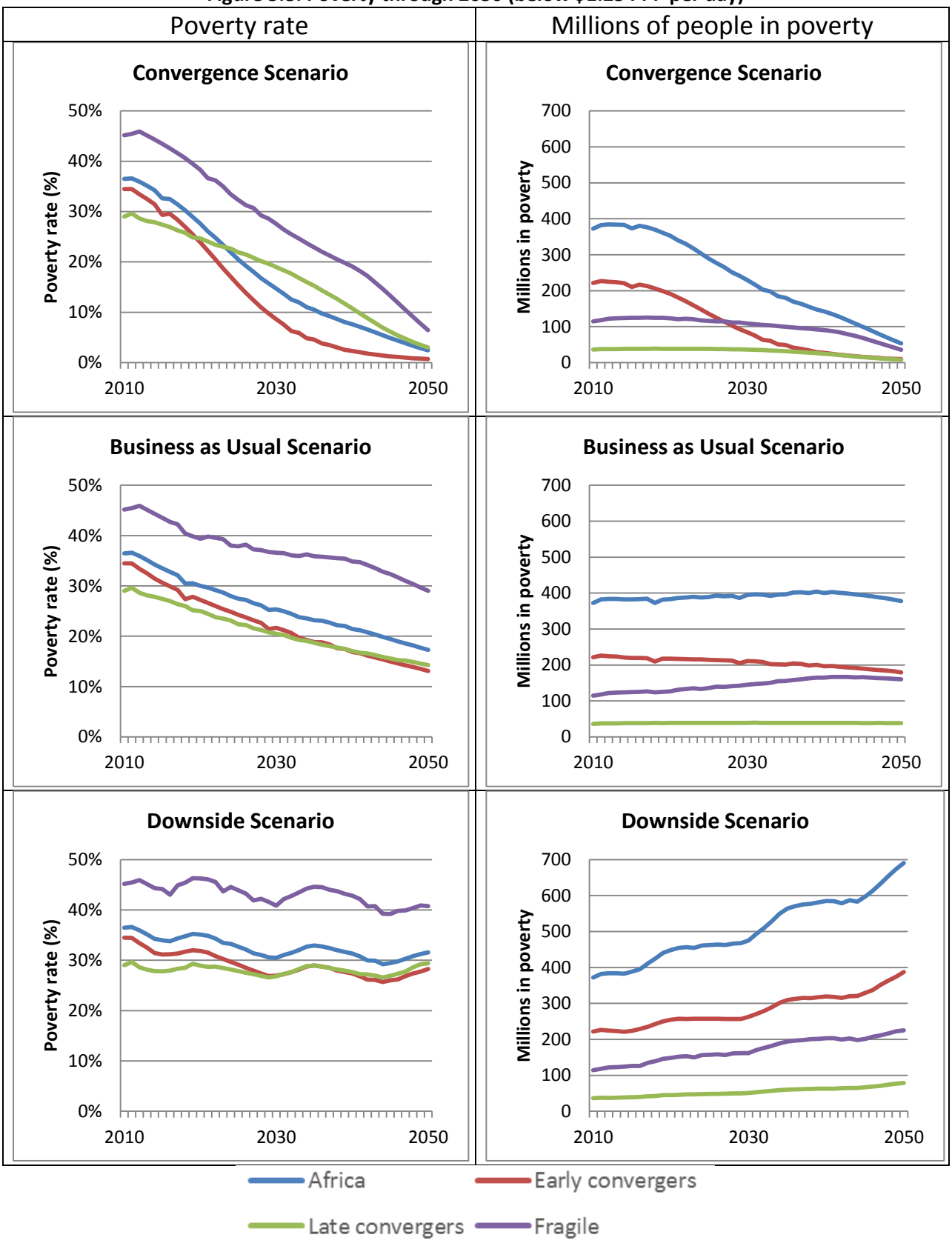
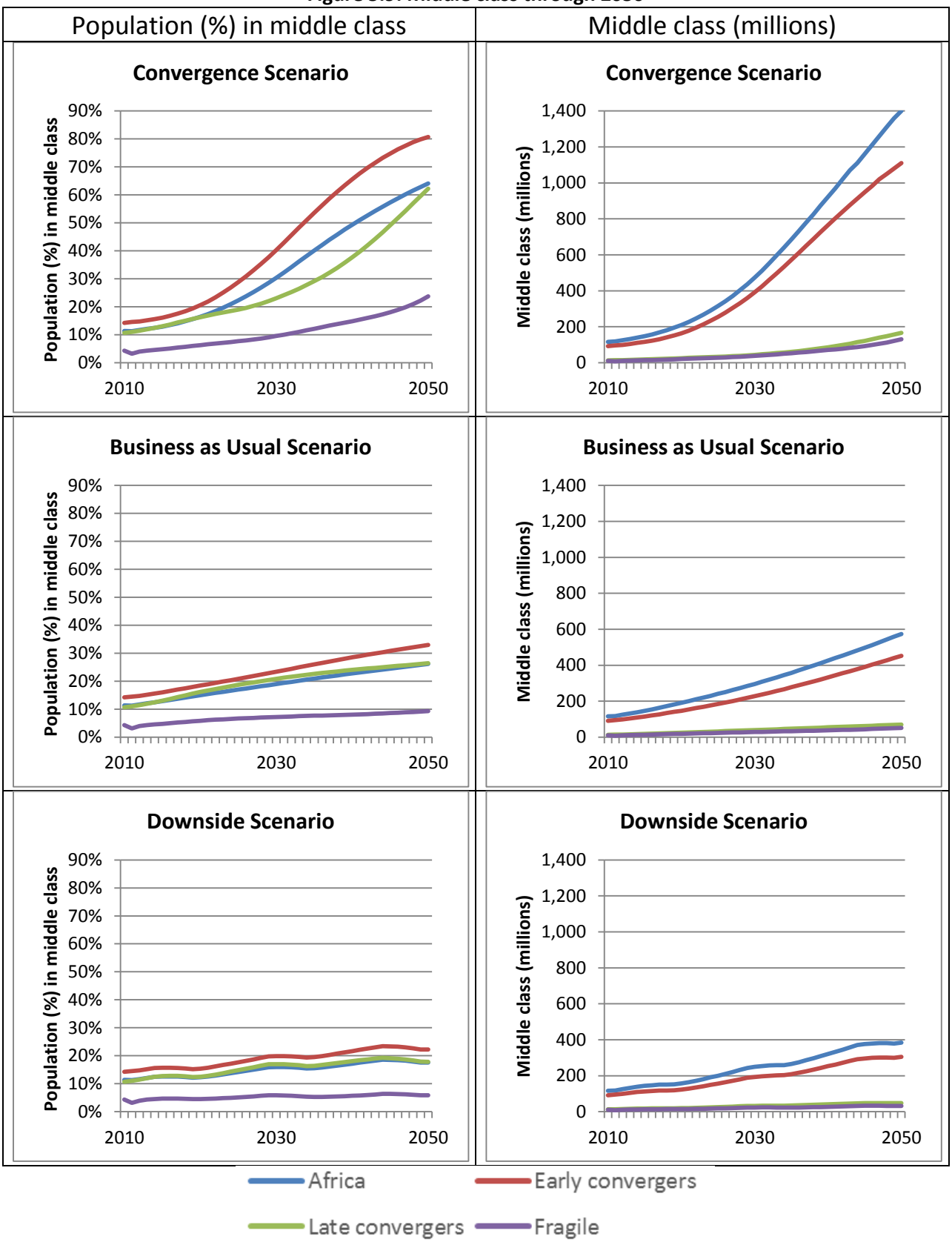


Figure 5.9: Middle class through 2050



VI. Action Agenda

In short, the recent impressive economic growth in Africa has not been accompanied by a reduction in poverty or of income inequalities. The actual number of poor in the continent has increased and two-thirds of the countries during 2000s had a Gini coefficient above 40, the threshold for high inequality. Not only has inequality been high, it has increased over time, with two-thirds of the 22 countries for which data are available experiencing increased inequality. Similar results are obtained when a combination of quintiles is undertaken.

Africa has been more successful in improving average achievements in education (especially of girls), access to health services and access to improved source of drinking water. But even in these areas there is some way to go. Some 50 million African children—especially girls—from poor backgrounds and rural areas still do not have access to primary education. And access to education becomes more difficult as children get older, with secondary and tertiary intake rates falling dramatically. In health, inter-country inequalities are large both in life expectancy and infant mortality rates. On access to improved source of drinking water, there are countries such as the Democratic Republic of Congo, Ethiopia and Madagascar where more than 55 percent of the countries' population is still without access to safe drinking water. Finally, with regard to access to improved sanitation facilities, much of Africa is off-track in meeting the MDG sanitation target by 2015.

Reducing inequalities in Africa would entail leveling the playing field through more equitable and broad-based basic education (early childhood development and girls education in particular) which was a distinguishing feature of Korean education. Brazil proactively used education to help level the playing field. Other options are increasing income earning opportunities; increasing access to basic health services and to water and sanitation facilities; and strengthening institutions that promote transparency and fairness.

Africa will need to grow at least at around 5 percent a year to keep the number of poor constant. Growth during the past decade has been higher than during the 1980s and 1990s, and yet the number of poor has increased. Part of the explanation may be that many of the most rapidly growing countries are resource-rich countries, and this growth has not translated into widespread improvements in living standards. At least part of the solution would be to reduce constraints on small businesses to facilitate productivity growth and employment. Access to finance, especially for small and medium enterprises is an important determinant of sustained growth.

Access to power supply emerges as a very serious constraint to business as seen by those affected. Africa has a great deal of potential for energy and huge natural gas reserves. The challenge would be to establish an energy platform for small businesses, and avoid the risk of going for growth that is concentrated in nodes of highly capital-intensive growth, leaving little for the rest. Issues related to the business environment are discussed elsewhere in this report.

An important aspect of inclusion is gender poverty. A useful indicator, developed by UNDP, to measure it is the gender inequality index, which is a composite measure reflecting inequality in achievements between women and men in three dimensions: reproductive health; empowerment; and the labor

market. The index varies between zero (when women and men fare equally) and 1 (where one gender fares as poorly as possible in all measured dimensions). Table 5.4 provides the data for selected African countries. Apart from Algeria, Mauritius and Tunisia, most other African countries score poorly compared to countries in other regions.

Inclusive growth is more than just an outcome; it is also a process. The ability of citizens to express and exercise their views is as important part of inclusive growth, as is the participation of citizens in decisions that influence their well-being. Active involvement of beneficiaries in anti-poverty programs may lower the informational costs associated with these interventions and offer the potential for the design and implementation of interventions that are in line with the preferences of the population they are designed to assist. This is confirmed by examination of several public works interventions undertaken in the Western Cape province of South Africa[63].

Table 5.4: Gender inequality in Africa, 2011

	Rank	Value
Tunisia	45	0.293
Mauritius	63	0.353
Algeria	71	0.412
South Africa	94	0.490
Botswana	102	0.507
Morocco	104	0.510
Senegal	114	0.566
Uganda	116	0.577
Zimbabwe	118	0.583
Tanzania	119	0.590
Malawi	120	0.594
Ghana	122	0.598
Mozambique	125	0.602
Kenya	130	0.627
Cameroon	134	0.639
Cote d'Ivoire	136	0.655
D.R.C.	142	0.710

Source: UNDP: Human Development Report 2011

Absence of the poor in decisions about their well-being can distort priorities. While in many African countries governments devote about one-third of their budgets to education and health, they spend little of it on the poor. For example, even though clean water is critical to health outcomes, in Morocco only 11 percent of the poorest quintile of the population has access to safe water, while everybody in the richest fifth does.

However, more public spending alone is not enough. Between 1980s and 1990s, total public spending on education in Ethiopia and Malawi increased by $8 per child of primary school age. In Ethiopia primary

[63] John Hoddinnot, Michele Adato, Tim Besley, and Lawrence Haddad (2001): *Participation and Poverty Reduction: Issues, Theory, and New Evidence from South Africa*

school completion stagnated, going from 22 percent in 1990 to only 24 percent in 1999, while in Malawi it rose from 30 percent to 50 percent.

When communities are not involved in establishing, supporting and overseeing a school, it is invariably seen as something alien. A study of schooling in rural Nigeria found that villagers often stopped expecting anything from government schools, taking the responsibility themselves[64]. One of the most powerful means of increasing the voice of poor citizens in policymaking is better information, which can serve as a stimulant for public action and as a catalyst for change. It is well known that when the government of Uganda learned that only 13 percent of recurrent spending for primary education was arriving in primary schools, it launched a monthly newspaper campaign on the transfer of funds. That campaign galvanized the population, inducing the government to increase the share going to primary schools (now over 80 percent) and compelling school principals to post the entire budget on the school room door. Similarly an in-depth study of the Iringa district in Tanzania, a poor rural area, showed that patients by-passed low quality facilities in favor of those offering higher quality consultations and prescriptions staffed by more knowledgeable physicians and better stocked with basic supplies[65].

To increase the quality of education, reforms should concentrate on increasing the voice and participation of beneficiaries, but not neglect the importance of central government oversight. In practical terms, there should be more community management of schools and demand-side subsidies to the poor, but with continuing stress on nationally determined curricula and certification.

Decentralizing delivery responsibilities for public services is prominent on the reform agenda of many countries, including Nigeria and South Africa[66]. A key objective, usually linked to political motivation for decentralization, is to strengthen citizen voice by bringing services and elected politicians closer to the beneficiaries.

In short, there are ways to use beneficiary power to improve outcomes. One is to involve citizens directly in the assessment and operation of schools. Another is to use demand-side subsidies to increase access for poor people. A third is to make provider resources depend on client choice—to have money follow students. None is a panacea by itself, but each can be a part of a strategy for school improvement.

With this overall picture of disparities in Africa, the key message for African policymakers is to confront inequality through efficient interventions that equalize access to basic services such as education, health water and sanitation, and to reduce inequality in three areas: (i) investing to reduce inequality in human capital; (ii) undertaking interventions that equalize opportunities spatially (e.g. rural-urban); and (iii) better targeting of subsidies.

[64] A.G. Daramola and others (1998): *Hard Lessons: Primary Schools, Community and Social Capital in Nigeria*, World Bank.
[65] Kenneth Leonard, Gilbert Mliga and Damen Haile Mariam (2002): *Bypassing Health Centers in Tanzania. Journal of African Economies.*
[66] World Bank (2004): *World Development Report*.

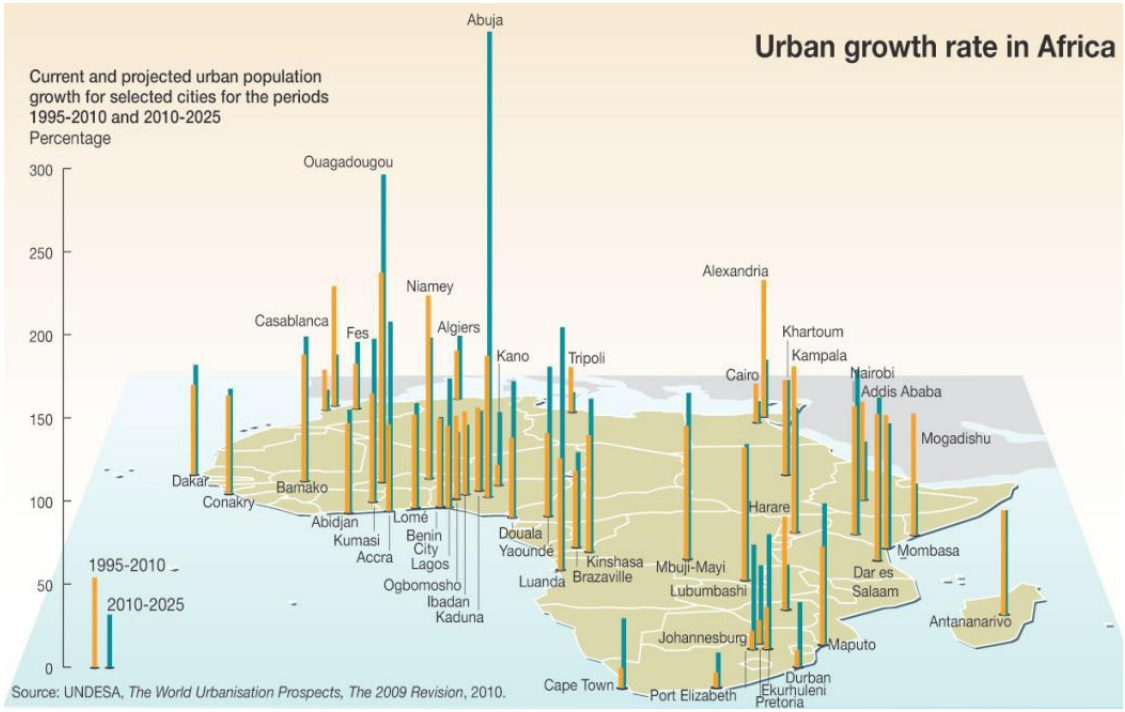
CHAPTER 6: URBANIZATION

I. Introduction

Over the next 40 years, Africa will have the fastest growing cities in the world. Figures 6.1 and 6.2 show the dramatic growth projected for 2010-2025. About 800 million Africans will either migrate to, or be born in, urban areas in the next four decades. By 2050 Africa's cities and towns will house nearly 1.5 billion people, 60% of the region's projected population (UN, State of the African Cities, 2010) (See Figure 6.3). African cities are already the fastest growing in the world, and by 2050, the continent could be home to up to 15 mega-cities of more than 10 million inhabitants. Even highly urbanized Egypt will see its urban population double by 2050.

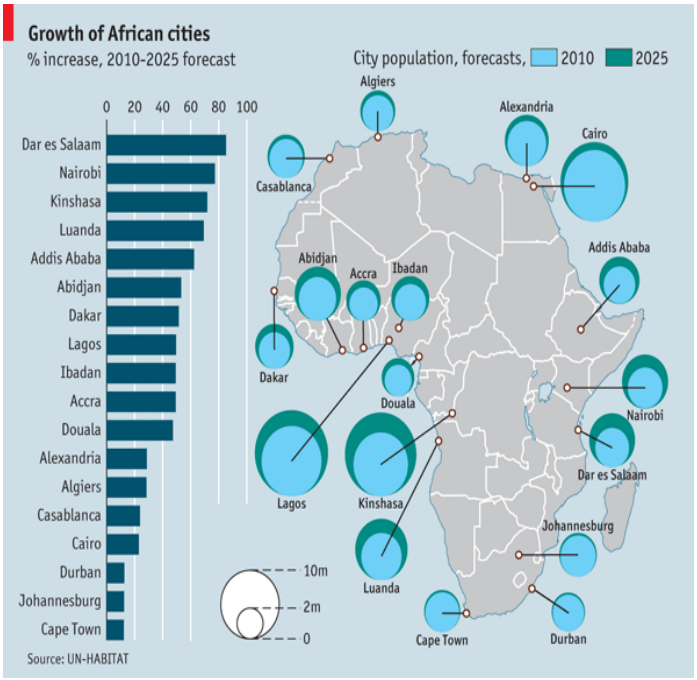
This urban population will be relatively young. With projected population growth rates in excess of 2%, the median age will continue to drop from the current 19.7 years (ibid). The number of youth will increase from 205 million today to anywhere from 330 to 450 million, the majority of whom will live in urban areas. These demographic shifts can lead to higher productivity and per capita incomes or to unmanageable social tensions, violence, and conflict. The "Arab Spring" demonstrates how youth disillusionment can rapidly gain momentum, particularly in urban areas where access to services and opportunities has lagged.

Figure 6.1: Urban Growth Rate in Africa



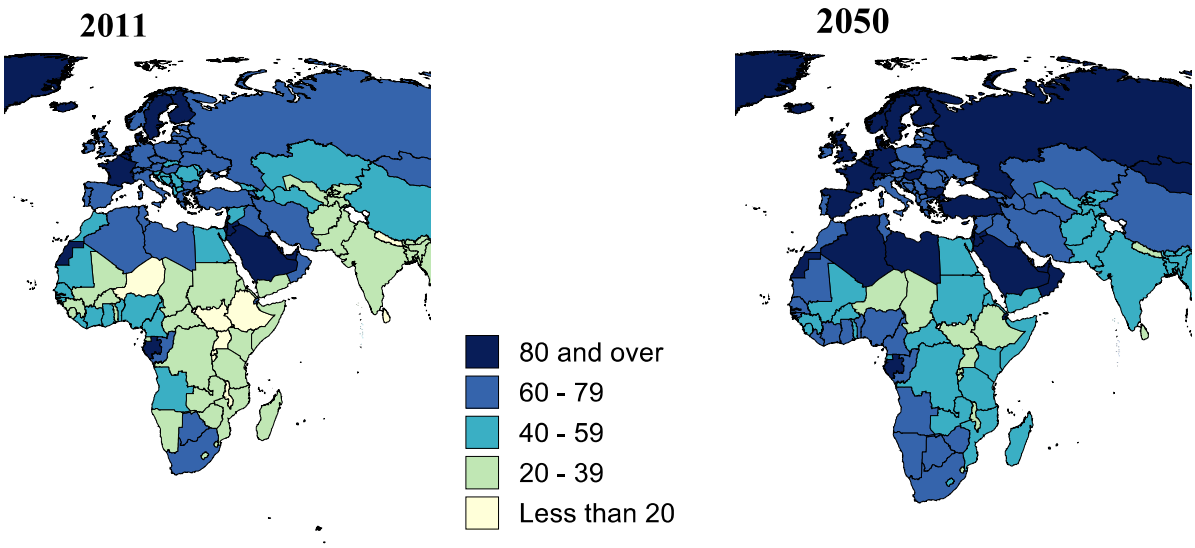
Source: Riccardo Pravettoni, UNEP/GRID-Arendal

Figure 6.2: Growth of African Cities



Source: The Economist

Figure 6.3: Percentage of Urban Population of Africa 2011 and 2050



Source: UN: World Population Prospects DEMOBASE extract. 2012

These urbanization dynamics will create growing demand for urban land and services. Declining fertility rates in urban areas will be offset by declining household sizes and mortality rates, as well as rising economic activity, per capita incomes and education levels. Africa's demographic dividend will be reaped or lost in its cities.

Section II describes the massive urban transition that lies ahead for Africa. It also points to the potential of urban centers, appropriately managed, to contribute significantly to productivity increases, growth and achievement of Vision 2050. Section III lays out the challenges of urban policy that African economies must overcome to realize this potential. Section IV outlines the vision for African cities in 2050 and for their management. The chapter concludes with an Action agenda for realizing the vision.

II. Urban Transition

Importantly, around 70% of Africa's urban growth will take place in secondary cities. While large infrastructure investments and often-idiosyncratic institutional arrangements will continue to be required in the largest metropolises, the needs of secondary cities will also have to be systematically addressed. These rapidly growing secondary cities will be home to more than half a billion new residents who will be seeking services, opportunities and shelter in market towns that typically have very little existing infrastructure but are not bound by scarcity of land.

How African leaders manage this massive urban transition will determine the extent to which countries in the region become effective partners (and competitors) in the global economy. These seismic demographic shifts will generate growing pressure for urban land, services and economic opportunities. Africa's cities will be the loci of much job creation. The size of urban markets, rising income of urban residents, and concentration of economic activity could make cities dynamic centers for higher productivity jobs—offering the prospects of a better life to more than one billion people. If policy-makers respond appropriately, these shifts offer a pathway to sustained and inclusive growth. If people are illiterate and unskilled, cities dysfunctional, and economies trapped in extractive activities and crony capitalism, urban areas will be poor and violent—offering only the desperation of hopelessness to residents holding only the prospect of growing inequality and instability. Well-managed urban areas will be a critical prerequisite to a future of dignity and equitable opportunity.

The ability of urban areas to become "the engines of economic growth" directly determines the rate and sustainability of national economic performance, and hence the development outcomes and political stability of the country. In rapidly urbanizing countries virtually all GDP growth is concentrated in the cities even as the rural share of GDP growth steadily declines. Those countries that are addressing the urbanization challenge effectively are achieving near double-digit growth rates (China, Ethiopia, Ghana, Uganda), those that are not continue to reap uneven economic performance and instability.

Globally, urbanization has proved an unstoppable process. International trends show that urbanization generates significant opportunities for growth, poverty reduction and environmental sustainability. This is because urban centers:

a) Make a disproportionate contribution to productivity growth and job creation. They have the potential to function as sources of economic dynamism by virtue of the spatial concentration of productive activity, entrepreneurs, workers and consumers. Dense constellations of firms and workers bring markets and suppliers in close proximity to facilitate the sharing of infrastructure, services and information, the matching of the distinctive requirements of firms for different types of premises, and innovation in products and processes;

b) Provide economies of scale for the financing and development of major facilities, particularly through leveraging local and national tax bases for public infrastructure investment (such as for integrated public transport systems or ports);
c) Are dynamic sites of social, political and cultural interaction and fusion. With rising personal mobility, they are places where people from many different languages, traditions and belief systems come together. Long recognised as the centres of creativity and innovation, cities are also the most likely places for political unrest to emerge; and
d) Are vital in efforts to curb the use of non-renewable resources, to reduce pollution and other forms of environmental degradation and to promote climate mitigation and adaptation. Higher density, more compact cities with mixed land uses can reduce the amount of energy needed for transportation and community services.

However, urban growth can also be associated with growing levels of inequality, and environmental damage. These trends are pronounced in many African cities, where inequality is conspicuous, levels of social exclusion are high, and the environmental sustainability of urban settlements is low.

Public policy will play a major role in determining how African countries capture the benefits of the urban transition, while mitigating its risks. But policy will have little influence on the underlying urban transition itself. Africa's urban moment is now - even as its cities swell with the population influx, they are not yet choked or overwhelmed by it. Most countries have the physical space, the physical networks and the embryonic institutions to meet the challenge - but only if they start acting now.

Core factors that will determine the extent to which the cities fulfill their prospective role as drivers of economic growth include: the level, quality and competitiveness of their services; the efficiency and sustainability with which these services are delivered; the predictability of their governance and accountability functions; the reliability of their regulatory implementation and business environment; the effectiveness of the operation of their land, housing and transport markets; their ability to strategically plan and implement initiatives that address environmental challenges; and enhanced livability derived from high-standard infrastructure linkages to attractive hinterlands. These are the attributes necessary to make African cities globally competitive, attracting international investment, opening up local capital markets and local investment, encouraging businesses to locate there, and fostering dynamic new business initiatives and a thriving start-up/innovation culture as well as a nurturing environment for micro and small enterprise development.

Urban growth will require the transformation of millions of hectares of land for businesses, housing, public spaces and circulation (see Annex 4). Physical expansion will require increased capacities of the associated water and sewerage systems, sanitation and solid waste management, roads and drainage, parks and recreation, electricity supply, and urban transport—all of which are to be provided on a massive scale by cities which, for the most part, have failed to meet much less pressing service demands to date. Recent studies have shown that despite the economic gains made by Africa over the past decade, and to a much greater extent than in Asia, there has been a significant increase in urban slums and a worsening of urban poverty levels. Innovation will be key to providing services in these conditions.

This massive change in land use is a huge institutional and financial challenge. But this transformation also offers an enormous opportunity for the region. Just as China's urbanization has lifted half a billion people out of poverty, assembling, servicing and mobilizing investment on millions of hectares of new urban land could create enormous numbers of jobs, assets and opportunities for inclusive growth across the whole region. Exploiting this opportunity will require a radical reconception by governments of their role and functions in a broadly based and accelerating urban development process. Embracing the inevitability of massive demand for serviced urban land and acting in a timely fashion to meet that demand represent a fundamental prerequisite to ensuring that the region's urban growth is productive, environmentally sustainable, and equitable.

III. Urban Policy Challenges

To realize their potential as effective engines of growth, African cities must meet six challenges that are common throughout the region.

1. The development of political and institutional platforms that enable cities to effectively support equitable growth. City-level authorities require sufficient actual authority, resources and accountability over core urban management functions in order to guide and coordinate urban development in responding to the demands of urban growth. Actual authority requires:
    a) The assignment of adequate authority over key urban development functions, particularly those of spatial planning and control, land and housing development, basic infrastructure services (such as water, solid waste, sanitation and energy) and public transportation services.
    b) Clear accountability of staff to city level leadership, particularly in the case of senior administrators and technical specialists, including authority to hire, fire and compensate staff appropriately, and protection from the all-to-frequent rotation of officials between local authorities.
    c) A transparent and predictable fiscal and financial framework for urban infrastructure investment and management, including the provision of adequate local revenue sources with sufficient discretion over rate-setting, and a predictable and fair basis for the transfer of national revenues to local governments.

    Basic policy frameworks exist in most African countries, but implementation is uneven. Entrenched interests impede functional, personnel and fiscal decentralization in many countries, skewing resource allocation in favor of central agencies that are not directly accountable to citizens. Excessive regulatory control of devolved powers, such as interference in tariff-setting, or highly unpredictable resource transfers prevent effective medium term planning and delivery. Even in countries that are increasing capital resource transfers to cities, central agencies earmark highly projectized investments that do not always address local priorities, are usually "one off' and not linked to more comprehensive integrated planning requirements, and do not involve adequate local consultation resulting in little local ownership of the assets.

2. Effective partnerships between locally elected officials and their constituencies. A significant number of African countries now have cities/local governments run by officials who have been

selected through some form of a popular election process. This establishes the framework for systems of transparency, accountability and inclusion in the management of the cities, including consultation in the formulation of development plans and the annual capital budget, public scrutiny in the management of public funds and the assignment of contracts, and public oversight in the operation and management of public assets. However, continued regulatory over-reach by central government and dependence on unpredictable central transfers prevents local officials and citizens from establishing performance-based delivery contracts and accountability mechanisms that address citizens' real needs and priorities.

3. Adequate technical skills and organizational capacity to effectively and efficiently manage complex urban systems. Most African cities are operating with very low bases of technical and management capacity across all the essential competency areas. Firstly, staffing complements are often unaffordably large but still lack the suitable skill profiles necessary to undertake their functions effectively. Continued control over senior and specialist positions by central agencies exacerbates these capacity shortfalls, as ill-timed rotations and inappropriate deployments weaken the capacity of city leadership to hold officials to account – and to establish effective capacity to provide and operate services. Qualified staff are reluctant to move to fast-growing secondary cities and towns and this is exacerbated by poorly developed (or no) schemes of service for local governments. The result is a self-fulfilling prophecy, where the view that cities are too weak to be entrusted with the responsibilities denies them the one fundamental ingredient essential to building their capacity - "learning by doing". Secondly, the tools for effective planning and management are undeveloped and the regulatory authority for enforcing the application of these tools is often subject to centralized authorization (or even direct management). Hence, key elements in the development of well-functioning cities, such as (i) market regulation (land use, setting and collection of fees, directing the location of infrastructure investments to influence/manage housing development, coordinating public transport) and (ii) forward planning (funds are severely limited and/or unpredictable, limiting the value of producing realistic plans that enjoy effective consultation with communities) that has the requisite tools for implementation and enforcement, are generally not functionally effective (if they are available at all).

4. Getting the basics right to support growth. A fourth set of common challenges constrains the ability of cities to fulfill their economic potential. Many cities in Africa are already demonstrating their robustness in taking advantage of the benefits of agglomeration, serving as the locus for job creation, the emergence of dynamic micro and small business activities and innovation focused on local market opportunities, and providing the context in which virtually all the GDP growth is taking place across the continent. In Tunisia for example, 9 out of 10 industrial establishments are located within one hour of a large city. However, much of the accelerating economic activity in the cities is taking place because of the "natural" abilities of dense agglomerations to act as incubators despite the costs inherent in their inefficient functioning. Faster growth requires key reforms in:

a) Service delivery, where levels of access and deficiencies in the quality and reliability (24/7) of the services represent significant additional costs to economic activities and discourage potential investors. The lack of technical and management expertise in the service delivery agencies, the limitations on their ability to ring fence their finances, the lack of proper regulation and tariff setting, the absence of incentive and accountability systems to foster sound performance, are factors commonly found across urban service delivery entities in most African cities;
b) Undeveloped land and housing markets that confine economic growth to the informal sector, and weaken the ability of cities to finance land and infrastructure development from rising urban land values. Weak property rights systems, in particular, typically constrain the efficient functioning of urban land and housing markets. The constraints arise from uncertain ownership rights, poor title recording systems and complex legal processes to assert property rights for purposes of investment and development. In Egypt for example, up to 90% of property transactions are unregistered, and 71 registration procedures are required for a transaction. One of the consequences of the poor functioning of the land, housing and housing finance markets is the rapid growth of unserviced squatter settlements (disproportionately large in Africa as compared to other rapidly urbanizing regions);
c) Costly spatial planning, where the absence of effective planning tools, and land use management and building regulatory regimes, as well as the inability to plan realistically in the absence of predictable capital development funding, result in: (i) uncontrolled settlement straining already low-capacity service delivery agencies; and (ii) the expansion of the cities along the same settlement patterns as introduced under colonial regimes - - viz very low densities that add substantially to the costs of infrastructure and transportation, and undercut the potential agglomeration benefits of urbanization. In Morocco for example, new cities ("Villes nouvelles") are being constructed miles away from economic centers.

5. A fifth set of common challenges revolves around managing cities for the impacts of climate change. Outside of the metropolises, most African cities are relatively new with modest sized populations, so future settlement patterns, which will house the majority of the urban settlers will be new, allowing for provisions to be made for the cities to contribute to global initiatives to reduce carbon emissions, and for them to take measures to cope with the impacts of climate change. But the economic dependence of a significant number of landlocked countries on a relatively limited number of coastal cities raises the stakes on the capacity of African ports to address the prospects of sea level rise. Similarly, many of the major economic centers in the interiors are located in areas highly vulnerable to flooding and/or highly dependent on stressed water resources. These vulnerabilities are accentuated in part because central agencies have yet to take the lead in developing policies, strategies and funding to deal with climate change that include enabling arrangements empowering cities to define and pursue their critical role in tackling the climate change agenda. Moreover, the specific actions and related instruments necessary to deal with climate change impacts - - more efficient, denser and well planned spatial

development patterns, more efficient and integrated public transport and traffic management systems, and bulk infrastructure and drainage networks as well as land use and building standards designed to cope with shifts in weather patterns - - are lacking.

6. A final set of challenges will increasingly focus on the roles of major metropolitan areas, regional clustering of cities with complementary economic functions, and regional links to key coastal port cities. Some countries are making substantial progress both within their own boundaries and across national borders, e.g. the Gauteng triple metropolis is increasingly well integrated and is directly connected to Maputo, and Cairo is well connected to coastal cities to the north and east. However, similar corridors/clusters in the rest of the continent are largely at the discussion stage.

IV. Vision for 2050

The above challenges notwithstanding, Africa is in the early stages of urbanization and an ambitious vision for 2050 is plausible and is outlined below. In 2050, 1.5 billion Africans would live in well-managed urban centers with adequate access to basic services, land and shelter. These cities would play a critical role in the continent's social and economic wellbeing, with vibrant urban economies providing a growing source of employment, driving economic growth and playing a leading role in the continents political and cultural life. Ongoing investment in and maintenance of urban infrastructure services will be financed from this growth, particularly through expanding and efficient land markets, providing an effective platform for African enterprises to compete globally.

By 2050, Africa's urban centers, ranging from regional metropolises to primary economic centers, secondary commercial centers and tertiary market towns, would:

1. Serve as effective platforms for driving economic growth and job development. Prospective local and global investors would be able to take for granted infrastructure network standards and health and education systems that are world class. The supporting service and market-oriented environments would effectively incubate small and medium size businesses. The service efficiency and proximity attributes of cities and towns would be fully exploited, encouraging technology, service and product innovation. Expanded economic activity would have generated robust fiscal bases promoting the participation of the capital markets in the funding of the cities. Economies of scale promoting regional integration would be realized in the development of urban clusters – mega-cities linked by mega-corridors (for example Mombasa-Nairobi-Kampala in East Africa and Lagos-Accra-Dakar in Western Africa) and efficient coastal cities that form the market entry points for the rest of the continent (for example the Johannesburg/Maputo corridor).
2. Operate within sound national institutional and regulatory frameworks enabling cities to function as systems in which public sector regulation and public sector goods investment are private sector friendly, thus promoting the emergence of a flourishing private sector, including in the land and housing markets and in urban transportation services.

3. Operate within sound political and fiscal enabling frameworks, based on firmly grounded legislation and regulation, clearly identified functional assignments for service delivery, and reliable fiscal systems ensuring adequate, predictable resource flows to meet functional responsibilities within effective upward and downward oversight structures.
4. Operate with well-functioning social contracts, whereby budgeting, investment decisions, and operational performance follow transparent and accountable procedures, routinely meet satisfactory audit standards, and deliver services to standards that address citizen expectations.
5. Generate steadily improving standards of living. Efficient spatial planning would enable cities to capture economies of scale (reversing the colonial inheritance of diseconomies of scale in city form). Routine and effective collaboration with central agencies would maximize the scale benefits and related efficiency gains in both the systemic management of the urban economy, and in the integrated planning and operation of service delivery. Strategic collaboration with the center would provide the "critical mass" necessary for those major investments required to establish essential city infrastructure platforms. Partnership arrangements with the private sector would be undertaken as a matter of course by the cities when service delivery efficiency gains can be made. More efficient connectivity of the cities to their unique African hinterlands would enhance quality of life opportunities and strengthen rural economic opportunities.
6. Significantly reduce urban poverty by increasing access to infrastructure, health and education services through the sustained, accelerated delivery of infrastructure works in slum/squatter settlements, complemented by "portable" tools (conditional cash transfers/vouchers) being made available to qualified households.
7. Address climate change imperatives through sound national policies that institutionally and fiscally equip cities to: develop and implement programs for mitigating generation of greenhouse gases through efficiency gains in transportation systems, management of solid waste, and well-planned settlement patterns and land use systems; promote adoption of eco-friendly technologies and practices including energy-efficient site planning and building systems; and introduce programs for adapting to the impacts of climate change.

V. Action Agenda

To realize the 2050 vision stated above, African governments must radically transform their approaches to African cities. Instead of focusing almost exclusively on sporadic, externally-financed support for discrete infrastructure investments, a broader approach is required that develops the systems necessary to underpin sustainable investments in urban infrastructure and services. This does not relegate the need for infrastructure investments to a lower priority, but rather suggests that an iterative strategy be developed in which countries establish systems that enable the effective management of urban growth – or City Enabling Systems (CESs) - that:

- Clearly define the assignment of functional responsibilities to urban governments
- Establishes the legal and regulatory frameworks for the functional and fiscal operations of urban local governments.
- Determine predictable sources of local revenues, including a transparent architecture for central-local fiscal transfers.

- Introduce guidelines and practices that support good governance and strengthen accountability, and
- Support the development of enhanced institutional capacity and performance of urban local government.

Broadly, African countries fall into three categories in respect of developing CESs:

- countries that are seriously and thoroughly attempting to create effective enabling environments for cities (e.g. South Africa, Ethiopia, Ghana, Uganda, Tanzania, Morocco, Tunisia);
- countries that are trying, with still limited success, to create effective city enabling environments (e.g. Egypt, Zambia, Senegal, Mali, Mauritania, Benin, Swaziland); and
- countries that have no serious initiatives to introduce CESs.

Clearly, the development of CESs must go hand in hand with the implementation of massive investments in urban infrastructure and services. A symbiotic relationship between the development of CESs and these investments is required, not only to ensure that current investment in infrastructure results in sustainable service delivery, but also to progressively increase the resources necessary to finance future investment.

Linking current investment financing to increased local capacity will require a focus on the strengthening the performance of city governments. National governments can utilize their inter-governmental fiscal transfer system to encourage and reward city governments in this regard. Fiscal transfers can reward progress being made by each respective city in implementing their responsibilities, as determined by independently conducted performance assessments. The rate at which the resource allocations would be scaled up would be directly linked to the demonstrated capacity of the city to effectively undertake the investments. Enhanced performance by the cities would, in turn, influence the extent to which sustainable domestic municipal finance markets would evolve, and against which funding for city development would be expanded.

A three-step approach:

To meet the 2050 vision, a wide array of initiatives will eventually be required, but for the next decade the most critical focus of governments' urban policies and strategies must be on establishing effective and well-functioning CESs, including a much more systematic approach to analyzing and subsequently addressing CES constraints.

The first step would be for countries to take a much more systematic approach to analyzing their current policy and regulatory frameworks within which urban local governments function. A clear analysis of gaps and weaknesses in CESs will allow tailored support to be provided relative to the needs of each country. The three key areas for CES assessment are:

a) Strategic Enabling Environment. For cities to manage and drive economic growth they must operate in a clear and predictable enabling policy and legislative environment. Cities should be supported to prepare realistic population growth projections over the medium term.

These should correspond to core infrastructure investment and land acquisition plans, including forward looking adjustments of urban boundaries and medium-term capital investment plans that will support productive urbanization . Analysis of the strategic environment for urban management requires a review of:

i. Enabling legislation: Delivery responsibilities and revenue assignments must be both clear and balanced allowing local governments and investors to proceed with confidence. Most countries in the region do not currently meet this requirement, with legal frameworks little changed from colonial times. These “Local Government Acts” commonly distinguish between urban and rural/traditional local authorities (as in Zimbabwe, Swaziland, Ghana, Sudan, etc.), give cities little relevant authority in urban management, and retain strong powers for central governments. Weak national Ministries of Local Government are ineffective in supporting larger cities. In a number of countries, decentralization initiatives have muddied the local government legislative environment; in Zambia, for instance, almost 20 years of political wrangling over decentralization policy has blocked effective local government reforms and performance. In Ghana, local government reforms have yet to be meaningfully implemented. Many countries, particularly in North Africa (Tunisia, Egypt), are reviewing governance arrangements and reconsidering the role and functions of local governments. This presents an important opportunity, although the specific type of enabling legislation will vary depending on each country’s specific circumstances . The “gold standard” for enabling legislation in the region is South Africa’s 1994 constitution that clearly sets out the structure and responsibilities of local governments, supported by very specific legislation delineating municipal finance regulations, PPP practices, and other key areas . Ethiopia’s federal nature required that regional states enact urban local authority legislation, with the Ministry for Urban Development as an effective central support organization.

ii. Urban Policy and City Strategies: Many countries in the region have titular “urban strategies” but most of these rest quietly on bookshelves. Effective national urban strategies will concisely focus on removing impediments to growth, rather than commanding specific outcomes. South Africa’s excellent national spatial development strategy, for instance, can be summarized as a) assuring all citizens have access to adequate basic services and b) investing heavily in areas—almost entirely urban—where growth potential is greatest. The chapter on the urban sector in Ethiopia’s current 5 year “Growth and Transformation Plan” focused on removing impediments to growth. Of course, useful national urban strategies can only be executed through realistic city level strategies. Johannesburg’s “iGoli 2002” and “iGoli 2010” set the regional standard for near-term transformation and medium term growth strategies; the 19 largest cities in Ethiopia are already implementing this two-step approach as are a number of other cities in the region. But many cities are still mired in the neo-colonial “master plan” cul-de-sac, vainly attempting to force growth into static zoning plans thereby braking the initiative of citizens,

denying opportunities to the working poor, and compiling expensive infrastructure backlogs as informal settlements continue to grow.

iii. Fiscal and financial frameworks: Transparent, reliable fiscal and financial systems are critical for good urban governance and sustainable service provision. Political will is required to install and maintain effective systems, and experience shows that Ministries of Finance are the crucial levers in achieving sound intergovernmental frameworks that promote growth while limiting contingent liabilities. Analysis of the financial environment for urban management requires a review of the adequacy and flexibility of local assigned revenue instruments, the arrangements for the sharing of national revenues to finance urban development and management, and the rules and procedures for city governments to access domestic capital markets. In Egypt for example, own source revenues account for only 6% of total city revenues and 90% of this is spent on staff salaries.

b) Accountability, Transparency and Performance. For cities to effectively drive growth, local officials must be empowered and encouraged to effectively respond to local needs and priorities. With very few exceptions, elected city officials throughout the region are not primarily accountable to their constituents. Dominant political parties "deploy" local government candidates with little or no regard for management capacity, and central ministries responsible for local government frequently interfere with local officials. The effectiveness of local governments in meeting citizen's priorities can only be judged when objective evidence is available. Cities in Namibia, South Africa, Swaziland and Ethiopia commission and publicize annual reports and are independently audited, but this practice is not common in the rest of the region. Ethiopia has very successfully instituted independent annual performance assessments for its 19 largest cities and is now planning to extend its performance-based grant system to 25 additional cities. South Africa's National Treasury and Fiscal and Finance Commission both regularly assess local government performance. But these good practices are not common in the rest of the region.

c) City/Local Government Capacity. City/local government management requires a multi-disciplinary skill set quite distinct from generic public administration, but few countries in the region have addressed this core requirement. Zambia's Local Government Training Institute has been functioning at a basic level since the mid-90s, and South Africa has a disparate array of local government training programs provided through both private and public entities. Ethiopia's Civil Service College (ECSC) has, since 2006, offered an Urban Management Masters Degree based on the highly regarded IHS degree program and more than 2000 graduates have thoroughly overhauled city management across the country. Donor driven training programs come and go irregularly in many other countries. To achieve the Africa Urban 2050 vision, the region needs a steady supply of effective urban managers, and the most cost-effective delivery method is to follow the ECSC model of adapting suitable existing curricula. In addition, national local government associations should be revitalized following the example of the South African Cities Network (SACN), and local government career paths should be strengthened and brought into consonance with skilled labor market conditions.

Thorough assessment of the key elements of national CESs across the region should not be an expensive or time-consuming exercise. Based on the CES assessment, each country can define the reform and capacity building work program required to support productive urbanization. Experience in the region shows that key reforms can be designed and adapted to local realities in a short period of time. With the Ministry of Finance in the lead, Zambia completely revamped the design of its intergovernmental fiscal architecture in less than a year. Ethiopia installed its performance based grant system in about 18 months. The key to successful reforms is, as always, effective champions within key agencies. In the absence of these champions, there is no track record of effective urban reforms in the region.

The second key step is for cities to project the urban growth they must accommodate to 2050, translate these projections into requirements for expanding the supply of serviced land, and begin the incremental processes of planning, assembling and servicing that land. CES reform and capacity building are necessary but in no way sufficient. Very few countries in the region have track records in systematic urban land assembly and delivery despite the fact that developable land is readily available around most of the region's cities. With a few notable exceptions, urban investments in the region over the last 40 years have been disjointed, projectized and wholly inadequate to meet the demands of increasingly rapid urbanization. In much of the region traditional (central) authorities are reluctant to cede control of portions of their domains for urban expansion. In other countries public land management agencies are similarly reluctant. Systematic programs to acquire and service land for urban expansion must be tailored to the realities of each country, and internal strictures that make financing land acquisition nearly impossible must be reexamined.

Countries that are serious about achieving a productive and sustainable 2050 urban vision—as evidenced by clear progress in implementing CES reforms and effective capacity building--should be supported in developing and implementing medium term urban land expansion programs. The region's cities must focus on keeping ahead of demand instead of ignoring growth. Adequate supply of serviced, affordable urban land will be the key to productive private investment by both firms and households especially in secondary cities and towns. Again, defining urban land expansion requirements is a manageable exercise. South Africa's Reconstruction and Development Program (RDP) was initially defined based on work undertaken over about 18 months. Existing methodology provides an excellent entry vehicle for preparing systematic urban land expansion needs assessments throughout the region.

The third key step to achieving the 2050 urban vision for Africa is to address financing issues. Acquiring and servicing land will be possible only if cities have access to adequate finance. This involves implementation of coherent, predictable intergovernmental fiscal and financial systems consisting of three elements that work together in a unified approach:

i. Local Own-Revenue Bases: Own-revenue assignments should be matched to delivery assignments. As African cities grow in both population and economic importance, parliamentarians and national officials must transition to supportive—rather than command—roles, allowing cities sufficient autonomy to charge and collect rates, tariffs and fees adequate to sustain services and infrastructure required for growth. Africa's rising middle class must play a key role in financing the infrastructure required to support urban growth. Central government

interference in setting local government tariffs is common in the region. City governments in Ethiopia, South Africa, Namibia and Swaziland are empowered to raise own-revenues largely consonant with delivery responsibilities, and are increasingly able to use these local sources of finance to invest in infrastructure to support growth – which in turn provides them with further revenues. In most other countries, authorized own revenue bases are inadequate to meet service delivery assignments. In most instances property taxes/rates are a critically important own-revenue source, with strong potential to finance infrastructure investment. In North Africa, prior to the Arab Spring, urban land values doubled every three years. Assistance may also be required in updating registries and valuations.

ii. Intergovernmental Fiscal Arrangements: Ministries of Finance must be assisted to make choices on intergovernmental transfer systems including sources and formula. Both South Africa and Ethiopia share portions of general revenues. Other countries may wish to identify specific sources, such as revenues from extraction of primary resources that are national public goods or shares of nationally collected taxes. Allocation formulae should be transparent as should conditions for disbursement of funds. The provision of funding should reward good performance by local governments. Accumulated arrearages and debts should be cleared allowing cities to begin with a clean slate. South Africa's intergovernmental fiscal framework features a constitutionally mandated division of revenues and very predictable intergovernmental grants operating through a medium term budget. Ethiopia's federal system also features revenue sharing to the regional states, and the federal government has overlaid a transparent, performance-based grant that promotes good urban governance with co-financing from the regions. Many other countries in the region—including Zambia, Zimbabwe, Kenya, and Ghana--have historical experience with relatively well-functioning intergovernmental fiscal systems that have not been maintained for a variety of reasons. And many countries have ad hoc intergovernmental systems or, as in several of the West African countries, deconcentrated systems that enforce local government dependence on the center.

iii. Domestic Municipal Finance Markets: To achieve the 2050 vision of African cities driving growth, creating jobs and effectively enabling private investment, responsive domestic sources of finance for investment by creditworthy city governments must be available widely across the region. Ministries of Finance must play crucial roles in fostering sound markets that do not impose contingent liabilities on the central fiscus. Obviously, development of sustainable municipal finance throughout the region will take time, and must in any event be based on the emergence of creditworthy, capable cities/borrowers. Until recently, very few domestic financial markets in the region have had the resources and capacity to provide municipal finance and, in any event, creditworthy municipal borrowers are in very short supply. As external/sovereign investment accelerates into the region, this picture is rapidly changing. Banks and pension funds will require support to understand how municipal financial markets work. Cities will require support to become creditworthy, both as an indicator of overall good governance and as a prerequisite to sustainable local borrowing without recourse to sovereign guarantees. In Morocco, cities have buoyant revenues and recurring budget surpluses, indicating a lack of capacity to invest.

Mobilization of domestic municipal finance markets can be approached in a variety of ways. Medium term plans should be developed to support key domestic financiers in learning and adopting good municipal lending practices. As creditworthy cities begin to emerge lending/bonds in manageable amounts should be facilitated between cities and lender, without sovereign guarantees. In countries with relatively sound financial sectors and significant resource inflows a combination of lending regulatory reform and capacity building with lenders may be adequate. Municipal finance intermediaries are common in West Africa and may, with adequate reforms, provide a basis for sustainable lending. Specialized municipal lenders may also be feasible. INCA for example, played a key role in priming the municipal finance market in South Africa. Partners should adopt a programmatic approach, fostering domestic market development instead of crowding out through direct lending to cities.

Getting to the 2050 vision for African cities will require at least ten-year commitments from governments, cities and partners. To be successful, these commitments must encompass the three key areas of work discussed above: reforming enabling environments, getting ahead of demand for land and services, and fostering sound fiscal and financial frameworks to finance large scale programs of urban infrastructure investment.

CHAPTER 7: NATURAL RESOURCES

I. Introduction

For many African countries the natural resource sectors (oil, gas and mining – the extractive industries) are important parts of the economy. If harnessed right, these natural resources can constitute a huge opportunity for development. By exploiting its natural resource base, in essence converting its underground minerals and agricultural potential into human and physical capital to create inclusive growth, Africa could by 2050 become factory and granary to the world, just as Britain and the US were the factories and the US and Argentina the granaries in the second half of the 19th Century, followed by China and Australia in the 20th Century.

This is a vision of economic convergence for Africa's resource-rich economies, where these countries "catch up" with other high and middle income countries to narrow the gap in per capita income and development outcomes. Over the next 40 years the African continent could build on its natural resource and agricultural production base to become an important supplier of intermediate and finished goods and agricultural products, relying on a diversified private sector and a high degree of economic and geographic integration. Africa's factories and agribusiness processing centers, linked by world class regional infrastructure (rail, road, electricity and information and communication technology (ICT)) to its raw material production centers and farms, could transform these inputs into intermediate and finished products, from where they would be exported to clients on the continent and across the world. By 2050 Africa could also possess a significant service sector, particularly in natural resource extraction-related activities such as mining finance, technical design, and environmental and social analysis. The continent could be home to major multinational corporations operating in the extractive industries across the globe.

The key challenge faced by Africa's resource-rich countries consists of transforming the resources in the ground into assets that lead to strong sustainable growth, economic diversification, reduction of inequality and poverty, and equity between generations. This chapter reviews the natural resource sector and outlines the key policy actions that Africa's governments will need to put in place to achieve the vision of convergence.

Africa and extractive industries remain inextricably linked. In many African countries, the natural resources sector constitutes a significant proportion of the formal economy. Africa is also an important player on the world stage for many mineral resources. In part this is because of its historical legacy as the continent where many of today's extraction techniques were first developed (copper and cobalt in Zambia, gold, platinum and diamonds in South Africa, bauxite in Guinea, liquefied natural gas in Algeria, phosphates etc.) and the African continent still boasts very rich deposits of ores that are much higher grade than elsewhere on the planet (bauxite in Guinea, copper in the Democratic Republic of Congo, gold in Ghana, iron ore in Liberia and Guinea, phosphates in Morocco, etc.).

Extractive industries have shaped the economies of many post-colonial African countries: Nigeria's oil and gas industry has defined the country's past four decades of economic development and has left significant governance and social development problems in its wake. The Democratic Republic of

Congo's copper, cobalt, diamonds and coltran[67] have fueled armed conflict and political instability in the east of the country and elsewhere. Guinea's fabulous bauxite reserves enabled it to survive epic macroeconomic mismanagement since independence in 1956.[68]

On the other hand, Botswana's extraordinary success in moving from a very poor colony to a well-performing middle income country in less than half a century has largely been ascribed to the responsible management of its diamond resources (See Box 2 further below). South Africa has a strong, dynamic world class private sector and modern infrastructure largely built upon and financed by developments in the mining industry for over a century, even as some of its traditional resources reach exhaustion. Mozambique's exploitation of its gas and coal reserves has fueled inclusive growth which has largely erased the scars of its post-independence upheavals. More recently, responsible management of gold and gemstone production in Tanzania and gold and oil and gas in Ghana has created economic growth which is transforming these countries' economies and creating strong private sectors. For good or for ill, the extractive industries make a very significant impact on the economies of Africa's resource rich countries. The challenge for Africa's policy makers is to apply the right combination of policies to ensure that this impact is positive, and will lead to the kind of inclusive growth necessary for economic convergence.

This chapter starts with a discussion of Africa's natural resource endowment and the opportunities and challenges it presents. Section II discusses the track record of African economies in the extraction, transformation and processing. It also outlines the conditions for downstream processing to proceed. Section III briefly presents the vision for Africa's extractive industries in 2050. The chapter concludes with recommendations for policy measures for the continent's resource-rich countries to converge with other emerging market economies. The recommendations cover both, measures related to natural resource rents and their management, and broader economic management to enable inclusive development and private sector-led diversification of the economies.

II. Historical Context

Yet Africa's reputation as an exceptionally well-endowed region can be overstated. While it's true that mining and oil and gas have been important sectors in the continent's economic development for over a century, today, with a few exceptions, Africa's mineral resource endowments in terms of proved reserves turn out to be rather modest at a global level (see Table 7.1 and Annex 5), ranging from 1% of world total reserves for iron ore to 26% for bauxite, the raw material for aluminum. Africa's production, too, of most key bulk minerals such as oil and gas, coal and iron ore mirror its global reserve position as fairly modest and does not stand out as exceptional. But there are some exceptions to this: Africa is still by far the most important reserve base and producer of gemstones, titanium and bauxite.

[67] Coltran is an ore combining columbite and tantalite, from which the elements niobium and tantalum are extracted. Tantalum is used to manufacture capacitors, used in electronic products such as integrated circuit chips, and is therefore present in minute quantities in almost all electronic devices. Coltan mining has been cited as helping to finance armed conflict in the Eastern Congo and is termed a conflict mineral.

[68] The author of this chapter remembers visiting Guinea's tropical capital Conakry in the mid-1980's, and seeing row upon row of snow plows sent by the Soviet Union in exchange for Guinean bauxite under the barter trade agreement between the two countries.

Table 7.1: Reserves and Production of Key Natural Resources

	Unit		Reserves end 2011			Production 2011			Reserves/Production (yrs)	
			World	Africa	%	World	Africa	%	World	Africa
Oil	*M Tonnes*	(1)	234300	17600	8%	3995.6	417.4	10%	59	42
Gas	*Bn Cubic Metres*	(1)	208400	14500	7%	3276.2	202.7	6%	64	72
Coal	*M Tonnes*	(1)	860938	32895	4%	5933	219.9	4%	145	150
Iron Ore	*M Tonnes*	(2)	170000	2500	1%	2800	70	3%	61	36
Bauxite (Alu)	*M Tonnes*	(2)	29000	7600	26%	220	20	9%	132	380
Titanium Ore	*M Tonnes TiO_2*	(3)	692	140	20%	6.7	2.02	30%	103	69
Copper Ore	*M Tonnes Cu*	(2)	690	50	7%	16.1	1.25	8%	552	40
Gold	*Thou. Tonnes Au*	(2)	51	9	18%	2.7	0.32	12%	159	28
Gemstones	*$ billion value*	(2)	No data available			80	50	62%	No data available	

Source: (1) BP Statistical Review, June 2012; (2) USGS Mineral Commodity Studies 2012, own estimates; (3) USGS Mineral Commodity Studies 2012, Titanium mineral concentrates (ilmenite and rutile)

That today Africa possesses only modest shares of global proved reserves may be an indication of lower investment in mining exploration that has taken place in recent years on the African continent. Investments in exploration, the key step before reserves can be certified, are probably lower in African countries than elsewhere, because of the greater risk for mining companies on the continent and the more arduous investment environment that Africa represents for them. In addition, technological advances and higher commodity prices have made extraction of lower grade ores located in other parts of the world economically viable, so they are now included in global reserve figures where in previous decades they were not. This lowers Africa's share of the total. However, Africa's resources are for the most part of higher grades than in other parts of the world. If commodity prices decline, Africa's resources would be among the last to be shelved and its share of the total reserve base would increase.

A. Natural resource endowments: Opportunities and Challenges

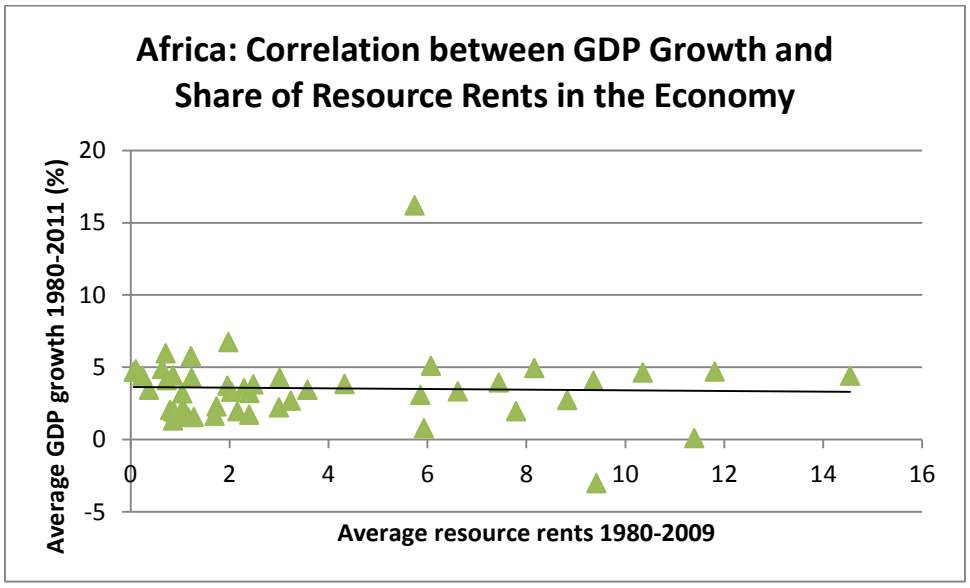
It is part of the conventional wisdom that natural resources have been a curse for Africa. But the effects of mineral resource endowments on the economy and social structures are complex and by no means a foregone conclusion.

It has often been stated that Africa's mineral wealth has not contributed as much as it should have to the development of the African continent itself. It seems that in many cases Africans have stood by as foreign firms extracted their resources, paying taxes and royalties to national governments that either have not had the capacity or have lacked the governance mechanisms to ensure their use for broad-based growth. In the worst cases, resource rents have led to Dutch disease and loss of competitiveness, or to widespread corruption, hollowing out local traditions and institutions and creating a culture of rent seeking and extraction, sometimes to armed conflict and war.

While it is true that looking to the past, some of those countries with very strong endowments seem to have had greater difficulty setting in place the strong institutions needed to create the basis for inclusive growth, in actual fact there does not seem to be any clear-cut statistical correlation between resource endowments (measured as the share of resource rents in GDP) and growth over a long period (Figure

7.1 below). Moreover, recent economic research suggests there is little causal link between oil wealth and conflict either, based on cross-country analysis and correcting for other explanatory variables.[69] While this research is narrower than the subject of this chapter both in terms of the commodity reviewed (oil) and the specific outcome (conflict, as opposed to other negative impacts), the rigor of the analysis underpins the broader conclusions of this chapter.

Figure 7.1



Source: World Bank and Centennial Group data

Mining and oil and gas make little direct contribution to the local economy. Extractive industries are highly capital-intensive, and neither create many jobs nor contribute significantly to development of skills and human capital. This is as true in Africa as it is in other parts of the world. Mining and oil and gas operations have few forward or backward linkages to the rest of the economy, and have often been managed as virtual enclaves without much impact on the economies of host countries other than payment of taxes and royalties. They do however have a very significant impact on the physical environment because of the operations involved in extracting the ore and disposing of tailings (mining waste). Mining and oil and gas can also have very significant impacts on local communities. While in some cases these impacts can be beneficial, for the most part they have tended to be deleterious, particularly during the construction phase when imported labor can introduce prostitution, sexually transmitted diseases such as HIV/AIDS, and petty crime. During the production phase tensions can arise between local communities and the central government and production companies (e.g. in the Niger and Escravos Deltas in Nigeria), when local communities deem the sharing of the proceeds of resource extraction as unfair.

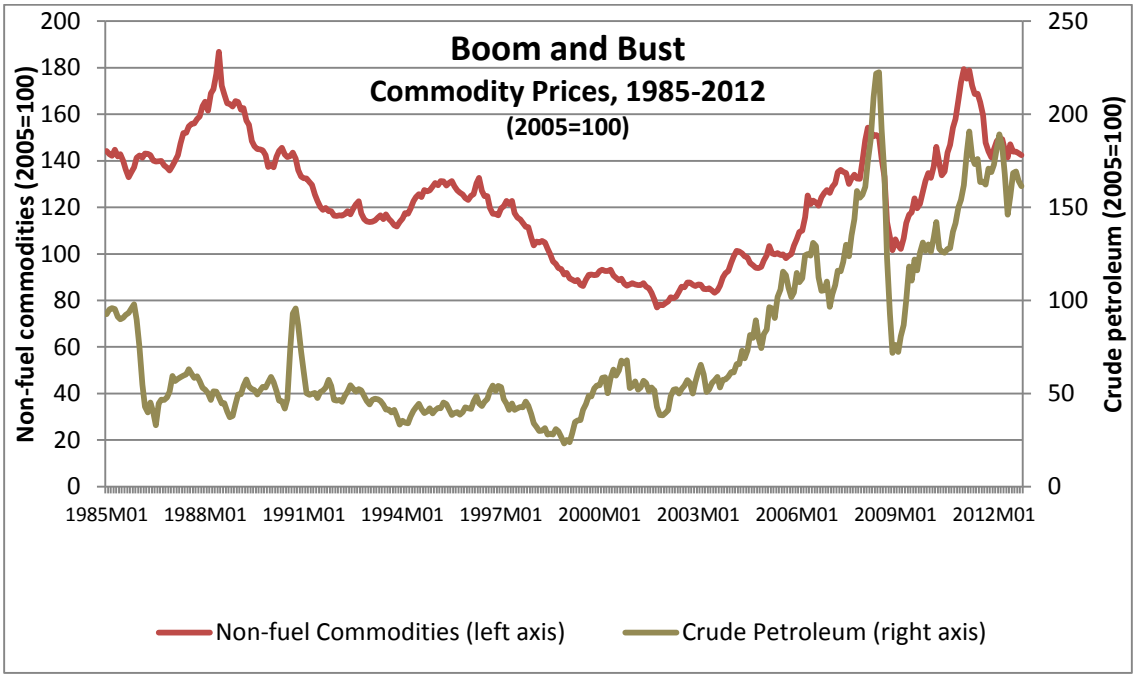
As the body of experience with extractive industries deepens, we are beginning to see greater positive interaction between extractive industries and the rest of the economy, particularly in countries where

[69] "Oil and Conflict: What does the Cross-Country Analysis Really Show", Anca M. Cotet and Kevin K. Tsui, American Economic Journal: Macroeconomics 2013, 5(1) 49-80.

resources have been developed more recently (oil and gas in Ghana, ilmenite in Madagascar, coal in Mozambique). In part this is because of clearer requirements imposed on investors by host countries, who now require firms to integrate their operations better with the local economy; in part because of a greater appreciation by mining and oil and gas companies themselves of the long term costs to their shareholders from negative environmental and social impacts.

Specific macro-economic challenges. Resource-rich countries do not face a set of macro-economic challenges that other developing countries don't. In the context of the process of transforming the natural resources into inclusive growth, resource-rich countries need to avoid the typical boom and bust cycles associated with resource earnings (Figure 7.2), as well as the distortions caused by spending in excess of the economy's absorption capacity and the attendant increases in inflation and real appreciation of the currency, a phenomenon frequently linked to resource booms.[70] As importantly, policies need to be designed with a view to minimize the adverse effects of an eventual permanent decline in resource earnings as the resources become exhausted. These effects could be severe.

Figure 7.2



Source: IMF and Centennial-Group estimates

Many resource-rich African countries have experienced boom and bust cycles owing to the volatility in resource earnings and a pro-cyclical fiscal policy: considerable (frequently inefficient) spending increases associated with positive earnings shocks, and abrupt reversals following adverse earnings shocks. Expenditures are adjusted to fluctuations in resource earnings; resource-rich countries overspend when times are good, i.e., when resource prices and associated revenues are high, and then cut back spending

[70] These distortions include overheating of the economy and the real appreciation of the currency, which through relative price changes leads to declining tradable sectors, a phenomenon known as "Dutch Disease. It can also lead to the breakdown in governance, increased corruption and the tendency of wasteful public spending ("white elephants").

when resource prices and revenues decline. This has been evidenced in the commodity price cycle that followed the global financial crisis.

Such a pro-cyclical fiscal policy involves a complex and costly expenditure-decision process with potential negative effects on the quality and efficiency of public spending. Furthermore, it leads to macroeconomic volatility, which affects the private sector's consumption and investment planning and decisions, and thus hampers growth potential.

In Africa, limited public oversight and parliamentary checks and balances exacerbate the problem. In good times fiscal resources are directed to "White Elephant" investments of marginal development value or to finance recurrent expenditure such as civil servant salaries. An excessively large and relatively well-paid public sector attracts the best talent, impoverishing other sectors, and drives up the cost of non-tradables within the economy. "Dutch disease" results from the appreciating exchange-rate which renders tradable sectors less competitive. In bad times, budgets are cut indiscriminately across the board, undermining the sustainability of investments in the social sectors and infrastructure. Schools are hit with unpaid salaries and lack of textbooks and infrastructure maintenance goes by the board.

B. Extracting and Transforming Africa's Resources

Extracting resources more equitably. Natural Resources create resource rents when they are produced. These resource rents are shared between the investor in the mine or oil field development and the host country. On balance, African countries do not receive as large a share of the resource rents as other regions of the world.

In economic terms, production of natural resources generates a "resource rent", defined as a surplus of value of the resource in the ground when valued at the market price, over the cost of its discovery and extraction. Resource rents increase when commodity prices increase, and the richer the ore body the greater its value in the ground, i.e. the higher the resource rent as well. Taxing natural resource production at rates above the country's income tax rates is justified by the sovereign ownership of the underground resource and the rent that this resource generates.

These resource rents justify resource-specific taxes over and above income and value-added and sales taxes, to ensure equitable sharing between the investor company and the sovereign owner of the resource. Governments argue – with some justification – that a significant portion of this resource rent should accrue to the host country, hence the need for a specific resource tax over and above economy-wide tax rates (income and value-added or sales taxes). The key challenge for all resource-endowed countries is how to set up a fiscal framework to tax resource rents at levels that maximize fiscal flows to the country but do not dissuade investor companies from exploring and producing the resource. The problem is compounded because commodity prices vary in unpredictable ways and with them, the value of the resource rent itself, and this can introduce wild swings in tax revenue and company profit.

For the purposes of this chapter we have categorized African countries as Resource Dominant, i.e. those for which resource rents represent 10% or more of GDP in 2009; Resource Available, with resource rents between 2% and 10% of GDP; and Resource Poor, with resource rents less than 2% (Table 7.2 and Annex

6). Naturally, this classification of countries will change as new reserves of minerals and oil and gas are discovered in coming years.

Table 7.2: Resource rents (% of GDP)

Resource Dominant		
	2009	Av. 2000-2009
Congo, Rep.	53.7	63.3
Equatorial Guinea	46.2	69.4
Libya	46.1	53.4
Gabon	41.1	46.6
Angola	38.4	56.0
Mauritania	37.7	23.6
Chad	33.6	30.6
Algeria	25.1	33.5
Nigeria	24.5	35.2
Zambia	17.6	10.5
Sudan/South Sudan	16.2	17.1
Congo, Dem. Rep.	14.9	10.2
Guinea	14.8	9.4
Egypt, Arab Rep.	10.5	15.0

Resource Available		
	2009	Av. 2000-2009
Mali	9.8	5.0
South Africa	7.5	5.1
Cameroon	6.6	8.9
Ghana	6.6	2.6
Cote d'Ivoire	5.8	5.1
Tunisia	5.5	5.4
Zimbabwe	4.7	4.6
Mozambique	4.7	4.3
Tanzania	4.3	2.0
Burkina Faso	3.5	0.6
Botswana	3.0	3.2
Morocco	2.2	1.5
Togo	2.0	1.2

Resource Poor					
	2009	Av. 2000-2009		2009	Av. 2000-2009
Liberia	1.4	0.3	Swaziland	0.0	0.0
Senegal	1.3	0.4	Benin	0.0	0.0
Burundi	1.1	0.5	Cape Verde	0.0	0.0
Namibia	0.9	0.9	Comoros	0.0	0.0
Sierra Leone	0.8	0.4	Gambia, The	0.0	0.0
Niger	0.8	0.4	Guinea-Bissau	0.0	0.0
Ethiopia	0.2	0.1	Lesotho	0.0	0.0
Eritrea	0.0	0.0	Malawi	0.0	0.0
Kenya	0.0	0.0	Mauritius	0.0	0.0
Madagascar	0.0	0.0	Sao Tome and Principe	0.0	0.0
Central African Republic	0.0	0.0	Seychelles	0.0	0.0
Rwanda	0.0	0.0	Somalia	0.0	0.0
Uganda	0.0	0.0	Djibouti	0.0	0.0

Source: World Bank Estimates

It should be noted that this definition of *Resource Dominant*, *Resource Available* and *Resource Poor* is based not on the absolute value of the resource rent but on its impact on the economy as a whole. This

means that economies with fairly significant mining sectors such as Namibia (diamonds, uranium) or Madagascar (ilmenite) figure as Resource Poor either because a fairly diversified economy reduces the impact of the mining sector (Namibia) or because of the very low resource rent of the mined commodity (the market price of ilmenite is only marginally above its cost of extraction) and therefore the rent represents only a marginal part of Madagascar's GDP. It may also demonstrate that a country is only obtaining a marginal share of the resource rent due to overly generous tax terms.

Resource Extraction Cycle. Extraction of oil, gas and minerals follows a fairly well defined cycle for all countries, and in each country is governed by a legal and contractual framework that depends on the country's specific oil and gas, mineral and investment legal codes. The degree to which a mining or oil and gas extraction operation is governed by law or by contract varies from country to country.

The extraction cycle commences with exploration, for which an exploration permit has generally to be obtained by the investor. Once economically viable oil, gas or mineral resources have been discovered, the investor generally has then to obtain a production contract, before developing the resource and investing in production facilities. During the life of the oil or gas field or the mine, production parameters (such as minimum investment amounts) and tax and royalty payments are defined by this production contract, which generally also defines social and environmental responsibilities and end-of-life remediation steps that will need to be taken. In some cases these parameters are contained in the legal framework instead. As a general rule, processing oil, gas or minerals into usable intermediate or end products (petroleum products, metals etc.) may or may not be carried out in the country of production. In any case, if it is, the legal framework and tax regime are for the most part those of other industrial sectors.

Table 7.3: The Resource Extraction Cycle

	Legal Framework		**Resource Taxation**	
	Oil and Gas	**Minerals**	**Oil and Gas**	**Minerals**
Exploration	▪ Exploration permits auctioned off under a competitive process	▪ Exploration permits granted on a first-come first-served process	▪ Exploration bonus paid for right to explore	▪ No bonus paid (but minimum investment commitment)
Production	▪ Production sharing contract	▪ Concession contract	▪ Royalty ▪ Oil production tax ▪ Equity stake for government	▪ Royalty ▪ Mineral production tax ▪ (Often a tax holiday is granted for the initial years)
Processing	▪ Refining and processing are generally undertaken as part of the legal framework covering industry		▪ Refining and processing are taxed at normal income tax rates. Petroleum products have specific excise taxes in addition to any economy-wide value-added or sales tax	

Source: Centennial Group

Attribution of exploration and production permits. Oil and gas exploration permits are generally auctioned off in "blocks" (a block is a defined acreage for exploration), and potential investors' bids include an initial cash payment ("signature bonus") to the government, as well as investment or exploration commitments. The government selects the highest bidder defined as a combination of the signature bonus and investment commitment. Mining exploration permits, on the other hand, are traditionally granted on a "first-come-first-served" basis and seldom include cash payments. This reflects the generally lower resource rent of the mineral compared to oil and gas and the lower degree of competition for mining exploration acreage.

At the production stage, oil production permits are generally "production sharing agreements" that include a significant equity share for the government in the investment itself[71]. The government is thus both sovereign regulator and shareholder. Once the oil field is under production the government receives, because of its equity in the field, either a cash payment equal to the value of its oil (on top of royalties and taxes due to it as sovereign), or it takes physical delivery of a percentage of total oil production which it will often then market directly or refine through its national petroleum company.

Many mining production contracts on the other hand have been straightforward concession agreements which define royalties and taxes as well as the investor's obligations but do not include an equity share of the investment for the government. There are however important exceptions to this rule and increasingly, as commodity prices have risen in the past decade, governments have sought to take a stake in the equity of the mining operation as well.

Africa's record with resource extraction contracts. On balance, African countries obtain a worse deal than other countries with resource rent sharing. Although it is difficult to obtain hard data concerning the resource rent-sharing terms of natural resource production contracts in Africa (see section II-A), abundant anecdotal evidence suggests that African countries obtain on average a lower share of resource rents than countries in other regions of the world.

In part the lower share of resource rents that African countries obtain represents the higher risk and cost of investing in the African continent. Governments in Africa have the reputation of being less predictable; the risk of expropriation is higher, at least based on historical records; there is a greater risk of armed conflict; and Africa's infrastructure endowment is lower. All of these factors represent risks (or in the case of infrastructure, costs) that investors will need to offset through a higher return on their investment, and therefore a larger share of the resource rent. Risk and return are strongly correlated and African countries must grant investors more of the resource rent, because of the perception that Africa is a risky place to do business.

But higher risks and increased infrastructure costs are not the only reasons for the less favorable contractual terms African countries obtain for their resources. A lower share of the resource rent also results from the weaker negotiating stance that African governments generally have in their negotiations with private investors compared to other parts of the world. African governments often

[71] The government's equity share is often "carried", i.e. financed by the private investor and reimbursed out of future cash flow.

have lower capacity and less extensive information, and especially do not make enough use of external expert advice to assist them in their negotiations.

Corruption lowers government take. Corruption, too, will result in a worse deal for the country and a lower share of the resource rent for the government. Side payments to officials and persons of influence do not come out of investors' profits (i.e. the private sector's share of the resource rent) but out of the government's share, and so these payments reduce the governments' formal take of the resource rent. While African countries are probably no more corrupt than those in other parts of the world, there are fewer external checks in Africa in the form of the transparency that civil society oversight would bring, and therefore corruption may have more of an impact on resource sharing in this region of the world than elsewhere.

In recent decades African countries have started to base their mining codes and oil and gas legislation, including their fiscal frameworks, on standardized best practice following policy advice provided notably by the World Bank. This initiative has been praised by industry because it provides them with a more rational framework for comparison between countries, and reduces the dimensions in negotiations between the two parties. It should also have significant advantages for civil society because it has the potential of providing them too with a standardized comparison. But despite being based on a common framework the precise fiscal terms are almost never known beyond the relevant ministries (mines or energy, and in some cases the ministry of finance). Confidentiality is often explained on the grounds that these sectors are "strategic". Whatever the merits of this argument, the resulting lack of transparency prevents public scrutiny, favors side payments and corruption, and leads to poor development outcomes.

Box 1: Mining Ownership in Zimbabwe and South Africa

The mining sectors in Zimbabwe and South Africa have been important drivers of economic activity for these countries for over a century, producing gold, platinum, diamonds and other minerals. In both countries mines were developed – at least initially – by foreign investors, creating well-known companies such as Anglo-American, Goldfields, de Beers and others.

Following majority rule in both of these countries, there was significant unhappiness about the lack of equity in the sharing of the resource rent. In both cases there has been a concern to transfer ownership of the sector to formerly disadvantaged nationals.

South Africa attempted to change the ownership structure of its mining industry in 2004. The Mineral and Petroleum Resources Development Act sought, among other things, to expand opportunities for historically disadvantaged South Africans ("HDSAs") to enter the mineral industry and obtain benefits from the exploitation of mineral resources; and to promote employment, social and economic welfare as well as ecologically sustainable development. Companies were required to lodge a social and labor plan on how they intended to expand opportunities for historically disadvantaged persons. The MPRD Act (incorporating the Mining Charter) also required a mining company to have ownership by HDSAs at a level of 15% by April 30, 2009 and 26% by April 30, 2014, transferred at fair market value. A review of this legislation undertaken by the government in 2010 concluded that so far it has not been fully successful in transferring significant assets to new investors (9% had been transferred by 2009), and opened questions about whether the priorities should focus on improved fiscal terms for the government rather than transfer of capital ownership to political elites. However, the 2014 target has been maintained and guidance has been provided about other aspects of the charter (e.g. dividend payments, job creation and training). The government retains wide-ranging discretionary powers in the sector.

In 2010 **Zimbabwe** passed an "indigenization" law under which foreign companies must transfer a controlling stake (51%) to indigenous nationals over a five year period. An "indigenous Zimbabwean" is defined as "any person who before the 18 April 1980" - the official founding date of Zimbabwe - "was disadvantaged by unfair discrimination on the grounds of his or her race". This ruling has created opportunities for politically well-connected individuals to benefit from the rent transfer (the UK press has referred to this as "Racketeering by Regulation") and has had a chilling effect on investment in the Zimbabwean mining sector. It will not, however, increase the share of rent that goes to government to pay for investments in human and physical capital.

In terms of **investment outcomes** in the mining sector following the introduction of the new legislation, South Africa has fared considerably better than Zimbabwe. South African mines continue to attract capital, both domestic and foreign. Whether this is a reflection on the more modest targets imposed in the law, or a greater sense of legal due process open to investors in South Africa, is not clear.

C. Transforming and processing Africa's resources – who gets the benefits?

Spin-offs from processing raw materials locally. Africa's resources are mostly exported for processing elsewhere. To a large extent Africa exports its raw materials for processing and inclusion into finished products in other parts of the globe. For example, although Africa possesses 26% of world bauxite reserves and produces 9% of world bauxite, in 2011 it only produced 4% of primary aluminum.[72] There are, however, important exceptions to this rule, notably for precious metals and copper/cobalt where high transport costs and the high value of the finished metal make it more economic to process them locally.

[72] Sources: Reserves and production of bauxite: USGS; primary aluminum production: International Aluminum Institute (http://www.world-aluminium.org/statistics/primary-aluminium-production/#data)

Mining and oil and gas production are capital-intensive activities which do not create much direct employment. The lack of local processing therefore potentially foregoes opportunities for job creation, development of skills and human capacity, and linkages to the rest of the economy. For decades the continent's leaders have lamented the fact that Africa's raw materials are exported elsewhere for processing, and have tried to encourage or coerce investors into integrating their activities downstream by investing in processing capacity in the region. But from an economic point of view this may have been a misguided priority.

Oil, gas and mineral processing are not very profitable businesses. Transformation processes such as oil refining, gas treatment and mineral processing can at best hope to cover their long run marginal costs over long periods, with significant over-shooting and under-shooting around this trend line. On average they do not generate significant profits or value-added and their contribution to GDP is small. For a processing plant to be able to buck the overall trend of low profitability and generate a profit over long period, it will need to have a geographic advantage of some sort.

For example, in the case of oil refining the geographic advantage is being located close to a major spot petroleum product market such as Rotterdam in Europe (at the mouth of the Rhine and barge transport into Germany); Singapore in Asia; and the US Gulf Coast in the United States. These localities set international prices for traded petroleum products. Locating refineries close to these key market hubs minimizes overall transport costs, because the cost of transporting crude oil to feed a refinery close to a market hub is significantly lower than the cost of transporting refined products from a distant refinery to the market hub.[73] Most African refineries therefore lose money in economic terms and need to be subsidized to remain in service (either directly from the treasury, or through administered prices for locally refined petroleum products which keep them above the cost of imports). This explains why only 1% of world refinery throughput takes place on the African continent, even though Africa represents 3.9% of world petroleum product consumption and produces 10.4% of the world's oil (see also Annex 7).[74]

In the case of aluminum smelting, the geographic advantage is due not so much to proximity to major market hubs as access to cheap energy, because of the extremely high energy cost of transforming alumina (an intermediate product between bauxite ore and metal aluminum) into aluminum. The only way an aluminum smelter can generate a positive margin over a long period is to be able to buy electrical energy at a price far below its average world cost, generally because the smelter has access to extremely cheap hydroelectricity (e.g. smelters in Ghana, Cameroon, Canada) or has a contract to buy energy at a very low marginal cost (Mozal smelter in Mozambique, which has a contract with South Africa's ESKOM at fractions of a US cent per kWh). If a smelter does not have access to such cheap electricity it cannot hope even to break even. Iron ore is to some extent in a similar situation.

[73] Petroleum products are transported in smaller, more technically sophisticated vessels than crude oil, which costs more per ton-mile.

[74] Source: BP Statistical Review, 2012 (June 2012). 3.6% of world refinery capacity is located in Africa but has a very low utilization rate due to its poor profitability.

There are exceptions to this rule, notably precious metals such as gold, silver and the platinum group metals, and copper. In Africa, ores of these metals are generally processed at or close to the mine. The high monetary value of the metal and onerous transport costs justify refining into metal at the point of extraction because it is much cheaper to transport small volumes of high value metal than the ore. But even so, their processing does not create much employment nor do they have significant linkages to the rest of the economy.

Record on downstream processing Africa's industries. With a few notable exceptions such as diamond processing in Botswana (see box 2 below), the record of downstream processing in Africa, when it has occurred, has not been good. As indicated above, most African processing plants already have a major handicap compared to optimal plants located elsewhere which benefit from a specific geographic advantage. In addition, unit investment costs have almost always been much higher than those in other parts of the world, in part because of the poor infrastructure endowment which increases construction costs, in part because of poor procurement practices. For example, a Memorandum of Understanding signed in mid-2012 between the government of Nigeria and a private US-Nigerian joint venture for the construction of refining capacity of 180.000 bbls/day (9 million tons/year) sets the investment at $4.5 billion[75], three times the estimated world average for the investment cost for a moderately complex refinery of a similar capacity.[76] Nigeria is an expensive place to do business and Nigerian refineries will find it difficult to compete with those in Rotterdam and other market hubs.

Box 2: Botswana – Diamond Sorting Initiative

The discovery of the Orapa diamond pipeline in 1967 by De Beers introduced diamond mining to Botswana which has transformed the country from one of the poorest economies in the world to one of the fastest growing middle income countries in the world. Diamond production was undertaken through the Debswana joint venture, a 50/50 partnership between the Government of Botswana and De Beers.

In May 2006, the government and De Beers established DTC Botswana, as subsidiary of Debswana, to sort and value Debswana's production and to make aggregated diamond mixes available for sale in Botswana for local manufacturing. A building was constructed with a total capacity to process 45 million carats and to accommodate up to 600 employees. It incorporates state of the art sorting equipment.

Today, DTC Botswana is the largest and most sophisticated rough diamond sorting and valuing operation in the world. DTC Botswana sells and markets rough diamonds to 21 cutting and polishing companies licensed by the Government of Botswana to carry out cutting and polishing activities locally. DTC Botswana aims to facilitate, drive and support the creation of a sustainable and profitable downstream diamond industry in Botswana that will deliver additional value for Botswana's diamonds. With further development of the Botswana downstream diamond industry, there is likely to be continued job creation in the coming years. The downstream activities add value to the local diamond industry through cutting & polishing of diamonds and ultimately manufacturing of jewelry.

The establishment of DTC Botswana also acts as a potential catalyst for the development of new business clusters such as banking; security; information technology; and tourism; and for other international businesses to invest in Botswana.

Source: The Centennial Group

[75] Source: Bloomberg, July 2, 2012

[76] Source: Petroleum Refining: Volume 5, Refinery operation and management, Chapter 4 page 149. (Published by Institut Français du Pétrole. Author: Jean-Pierre Favennec)

Moreover, where processing plants have been set up in Africa, not only have their geographic disadvantages made them largely uneconomic, they have not been good at developing world class skills either because of poor profitability and often poor management, although they may represent an important source of local employment. For example, before its privatization in 2002 the Zambian state-owned enterprise ZCCM, which smelted copper ore into copper and cobalt metals, was the most important source of employment in the Zambian Copper Belt, employing thousands of workers, but its operating techniques were decades old because of the lack of investment in its plants, and the skills it imparted were not very useful outside its own operations. The Nigerian state-owned petroleum company NNPC has had great difficulty in keeping its oil refineries operating due to low profitability and poor maintenance, and has not been able to provide significant skills to the workers in the Nigerian refining industry.

Conditions for downstream processing to succeed. That downstream processing has led to disappointing outcomes in the past does not mean that it should be foregone in all cases going forward. There are some important success stories for downstream processing in countries like Botswana, South Africa and Morocco, and there is still a case to be made for it if the conditions are right. To work and make a positive contribution to the economy, downstream processing must respect three criteria:

- A significant geographic advantage other than reserves of the natural resource itself.
- Investment and ownership by the private sector, to ensure effective management.
- Downstream processing activities must be carried out in a competitive environment and operating or price subsidies must be eschewed.

Under these conditions, downstream processing makes economic sense and should be pursued.

III. A vision for Africa's extractive industries in 2050

In 2050 Africa could be the factory and granary to the world, just as Britain and the US were the factories and the US and Argentina the granaries in the second half of the 19th Century, succeeded in the 20th Century by China and Australia.

This vision will need Africa's workers, who are young and energetic, to become highly skilled, productive, and cost-effective. If it is realized, this vision would confer on African countries highly diversified economies where the extractive industries are only a small part of total output but produce the inputs for its highly competitive manufacturing and service industries.

In this vision Africa will have avoided its resource curse and turned it into a blessing.

Resource-rich African countries can converge if they use their resources now to build a diverse economy alongside their extractive industries. If they do this, natural resource rents will over time present a much smaller share of GDP, in part because of the inevitable decline of extractive industries on the continent between now and 2050 but mostly because of growth in other sectors of the economy.

Policy-makers of resource-rich African countries need to take action on the four measures outlined in Box 6 now or they are likely to miss an important opportunity for economic convergence. Africa's

resource importance is declining compared to other parts of the world and the fiscal revenue available to African countries from the extractive industries could well decline over the next forty years.

We will examine how each of these measures need to be implemented below.

IV. Policy measures to achieve convergence for Africa's resource-rich countries

All African countries with natural resource exports will need to implement the following measures to get onto the convergence path. Two relate specifically to natural resources, the other two relate to broader economic policy.

Actions relating to the natural resource sector:

- African countries need to obtain a greater share of resource rents. Better informed negotiations with mining and oil and gas companies, and greater transparency and public accountability to reduce opportunities for corruption
- African policy-makers must manage their resource rents effectively, through rigorous macroeconomic management based on fiscal rules to offset boom and bust cycles and make the necessary intergenerational tradeoffs. This is likely to include the creation of stabilization and wealth funds

Actions relating to broader economic management:

- Fiscal revenues must be invested to create inclusive development, notably in public infrastructure and human capital
- African policy-makers need to foster a diversified private sector alongside its extractive industries to provide the basis for strong, inclusive growth. This will need, in particular, greater integration of Africa's economies.

A. Natural resource-related policy measures:

To **obtain a greater share of resource rents** policy makers must:

- Ensure greater transparency in their extractive industries by providing public disclosure of the fiscal and other terms of resource extraction contracts.[77]
- Call on world class expertise when negotiating new contracts by obtaining expert services. Financial assistance can be obtained through the facilities managed by the African Development Bank and the World Bank.

Greater transparency would lead to more equitable sharing of resource rents. The first step toward obtaining a fairer sharing of the resource rent would naturally be to have greater transparency across the region about what precisely the ratio of rent sharing is, i.e. what tax and royalty rates, and other parafiscal levies, private investors have to pay. However, the terms of contracts governing the extraction

[77] Such transparency, involving disclosure of actual fiscal terms, goes beyond EITI which publishes financial flows paid by the private investor to the government, and as such does not provide an estimate of the resource rent sharing.

of natural resources in Africa are difficult to obtain, even for government officials from the country who are not in the relevant sector ministry.

Nationalization is not a solution. In past decades some countries (not only those in Africa), frustrated by the unfair sharing of resource rents and the "raw deal" they believed they were obtaining for their natural resources, resorted to nationalization (replacing private investors by state-owned companies) or indigenization (transferring a portion of ownership of existing assets to nationals) to increase the national share of the resource rent. But these strategies have not been viable options for Africa any more than they have in other parts of the world: where oil, gas and mineral extraction is undertaken by a state-owned enterprise the outcome frequently combines both inefficiency and corruption. By almost any measure most natural resource-based state owned companies, such as Sonatrach in Algeria (oil and gas) and Gécamines in Democratic Republic of Congo have significantly underperformed compared to their private peers. Transferring a portion of the capital to nationals creates very significant opportunities for rent seeking and corruption and does not address the central issue of inequitable sharing of the resource rent between the investor and the government.

To get a better deal for their countries, African governments will need to take into account the fact they are operating in a competitive environment, and private investors have the choice to go elsewhere. Three sets of actions are needed: those to reduce investors' costs and perceptions of political risk; those to enhance governments' negotiating capacity; and those to eliminate corruption. By reducing their handicaps, most notably the perception of the risk of investing in the continent, and by having negotiators who are world class, honest, and very well informed, the terms of the deal will become much better balanced. And greater transparency is the best way to reduce or eliminate corruption.

Given the widespread lack of transparency in the extractive industries, several global initiatives have been launched to improve outcomes for resource-rich countries (see Box 3).

Box3: Extractive Industries Transparency Initiative (EITI)

The Extractive Industries Transparency Initiative (EITI), the most important global initiative on natural resource governance, was created in September 2002 at the World Summit on Sustainable Development in Johannesburg. It is financed by a number of OECD countries with a Secretariat based in Oslo, Norway. It aims to improve transparency of payments by oil, gas and mining companies to governments or government agencies such as state owned enterprises, as well as transparency of the use of revenues by host country governments. EITI has been implemented in 37 resource rich countries, of which 18 are fully compliant with EITI principles, and 19 candidate countries. One country has been suspended.

EITI has issued a set of reporting guidelines, a Statement of Principles, and six Criteria which represent the global minimum standard for EITI implementation. In May 2005 an International Advisory Group (IAG) was established under the Chairmanship of Peter Eigen (who founded Transparency International, a global NGO which fights corruption)*, to assess the progress made by the EITI. African countries are important players in EITI, representing over half of all the countries involved in the initiative. Currently, ten of the EITI-compliant countries (out of 18) are from the African continent and 11 of the candidate countries (out of 19). The one suspended country – Madagascar – is from Africa as well (Table 2). EITI has had a significant and positive impact on transparency in financial flows in the oil, gas and mining sectors of its member countries, reducing opportunities for corruption and improving outcomes.

Table 7.4: African Countries Active in EITI (January 2013)

EITI Compliant Countries in Africa	EITI Candidate Countries in Africa
Central African Republic	Burkina Faso
Ghana	Cameroon
Liberia	Chad
Mali	Cameroon
Mauritania	Democratic Republic of Congo
Mozambique	Gabon
Niger	Guinea
Nigeria	Republic of Congo
Tanzania	Sao Tome and Principe
Zambia	Sierra Leone
	Togo

* Peter Eigen is currently spearheading a joint initiative between the Hamburg-based Humboldt-Viadrina School of Governance and the Vale Columbia Center on Sustainable International Investment to provide developing country governments with assistance in negotiating investment-related contracts, notably in the extractive industries.

Initiative Criteria

1. Regular publication of all oil, gas and mining payments by companies to governments; all revenues received by governments from companies; data made available to a wide audience in a publicly accessible manner.
2. Payments and revenues are the subject of a credible, independent audit, applying international auditing standards.
3. Payments and revenues are reconciled by a credible, independent administrator.
4. This approach is extended to all companies including state-owned enterprises.
5. Civil society is actively engaged as a participant in the design, monitoring and evaluation of this process and contributes towards public debate.
6. A public, financially sustainable work plan for all the above is developed by the host government, including measurable targets, a timetable for implementation, and an assessment of potential capacity constraints.

Source: EITI, abridged by author

Box 3 - continued: Other Global Transparency Initiatives

The Kimberley Process Certification Scheme (Kimberley Process or KP) is an international governmental certification initiative set up by governments, industry and civil society to prevent the trade in diamonds that fund conflict. Launched in January 2003, the scheme requires governments to certify that shipments of rough diamonds are conflict-free.

The KP requires participating governments to certify the origin of rough diamonds, and put in place effective controls to prevent conflict stones from entering the supply chain. Participant countries must enact domestic legislation to implement the scheme, and can only trade rough diamonds with other members. Currently, 75 governments participate in the Kimberley Process. Its technical provisions are implemented by governments, but its tripartite structure means that non-governmental organizations and the diamond industry hold official status as observers and take part, along with member states, in all working groups and decision making processes.

The initiative has obtained some successes since its introduction, e.g. its tripartite approach to solving international problems, and helping some of the countries that were worst-hit by diamond-fuelled wars to increase their official diamond revenues. However, it has been hobbled by the failure of member governments to deal effectively with problem cases such as Zimbabwe, Côte d'Ivoire and Venezuela. Despite the existence of the Kimberley Process, diamonds are still fuelling conflict. Although the scheme makes it more difficult for diamonds from rebel-held areas to reach international markets, there are still significant weaknesses in the scheme that undermine its effectiveness and allow the trade in conflict diamonds to continue.

Natural Resource Charter is a global initiative designed to help governments and civil society effectively harness the opportunities created by natural resources. The Natural Resource Charter provides twelve Precepts to inform and improve natural resource management. It was drafted by an independent group of experts in economically sustainable resource extraction and has no political sponsorship. The Technical Advisory Group is chaired by Michael Spence (Nobel Laureate in Economics) and comprises 30 experts.[1] The Charter is governed by an Oversight Board chaired by Ernesto Zedillo, former President of Mexico. It is a common framework for addressing the challenges of natural resource management.

Publish What You Pay (PWYP) is a global network of civil society organizations which undertakes public campaigns and policy advocacy to encourage disclosure of information about extractive industry revenues and contracts. The network is diverse, with over 650 member organizations across the world including human rights, development, environmental and faith-based organizations. In about 30 countries, network members have joined forces to create civil society coalitions for collective action to enhance transparency of natural resource revenues.

In addition to these global initiatives, several global advocacy NGOs focus on the issue of revenue transparency and corruption, either as part of a broader mandate (**Oxfam**) or as their key objective (**Revenue Watch** and **Global Witness)**.

The degree of success of these various initiatives is mixed. There is a consensus that EITI has had a very significant impact both on transparency of funds flows and on norms of behavior, particularly in the oil and gas sector. On the other hand, the Kimberley Process has been a mitigated success at best. Overall however, these initiatives have together raised global awareness of the issues surrounding corruption and lack of transparency in resource-rich countries, including in particular within the civil societies of African countries, and are having a beneficial impact on the way these industries are managed.

To **manage their resource rents effectively** policy makers must:

- Apply revenue management rules (Non-Resource Primary Fiscal Balance Target or Structural Primary Fiscal Target) to remove cyclicality of resource and non-resource revenues.
- Implement the monetary policy recommendation outlined earlier in this chapter.
- Consider the creation of stabilization and wealth funds, managed independently and domiciled in an external bank of international standing.

Resource-rich countries need to implement policies that deal with volatility and intergenerational trade-offs. Potentially important tools in the management of fiscal flows are stabilization/liquidity funds, designed to help avoid boom and bust cycles, as well as wealth funds to help manage the economic distortions associated with resource booms and address intergenerational issues. The following sections elaborate on fiscal rules for the management of resource flows, and on the use of resource funds.

Fiscal rules to promote macroeconomic stability. To delink public spending from the dynamics of resource earnings for macroeconomic stability purposes, policy makers can adopt fiscal rules that define a sustainable public spending pattern that is protected from the volatility of resource earnings. Such rules would smooth public spending over time by allowing for larger (smaller) government deficits when resource earnings are lower (higher) than their long-term potential level.[78] Moreover, they apply automatically, avoiding the need for the complex and costly decisions referred to above.

Fiscal Rules for Macroeconomic Stability

Approach 1: Adopt a **Non-Resource Primary Fiscal Balance Target** (NRPB) to delink fiscal policy from the volatility of resource earnings due to swings in external commodity prices

Approach 2: Adopt a **Structural Primary Fiscal Target** to remove cyclicality of resource and non-resource revenues

This section focuses on two alternative rules or approaches. They establish short- to medium-term fiscal targets that take into account fiscal sustainability in the longer-term. They consist of the adoption of (1) a non-resource primary fiscal balance target or (2) a structural primary fiscal target.[79] Both approaches involve the establishment of a stabilization/liquidity fund, which accumulates revenues in good times that can be used to cover public spending in bad times, relative to long-term potential resource revenues. By smoothing public spending over the cycle, they are helping achieve effectively a more stable macroeconomic environment. Moreover, either approach will help improve the spending quality and efficiency of both the public and private sectors because it allows for better expenditure planning.

The non-resource primary balance (NRPB) is the overall primary balance excluding all tax and royalty collection from natural resource activities. Thus, using the NRPB as a target helps delink fiscal policy from the volatility of resource earnings. It measures the impact of government operations on domestic demand, given that resource earnings are originated externally. The structural primary balance (SPB) is

[78] These rules call for a well-defined formula and expert judgment to estimate long-term potential resource earnings and the benchmark/reference price of the natural resource. As the resource horizons and price developments are uncertain, this potential needs to be updated with some frequency.

[79] Targeting the non-resource or structural primary fiscal balance is more appropriate than targeting the corresponding overall balances because it allows the formulation and assessment of fiscal policy independent of changes in interest payments.

the overall primary balance excluding the cyclical component of resource and non-resource revenue. The implementation of this approach requires an independent institutional framework to ensure credibility of the estimates of the cyclical component. Moreover, estimating this component of revenue (and the associated output gap) may be quite a complex task, a key reason for its limited worldwide use.

Stabilization/liquidity fund to address volatility in resource earnings. The size of a stabilization/liquidity fund is to be determined mainly by the expected volatility in earnings (due to variations in the resource price), especially the extent of the swings, with just a minimum or no accumulation of funds over the commodity price cycle. Such a fund requires adequate transparency and public oversight to prevent corruption and mismanagement. The fund also needs to be supported by the capacity to develop medium-term forecasts of resource revenues. These funds are in essence self-insurance, and may be expensive when weighted against a country's pressing development needs, including a considerable gap in infrastructure and social outcomes (see Annex 6). Countries may instead opt for market-based instruments to deal with earnings volatility (e.g., futures contracts) or for a minimum liquidity buffer based on, for example, value-at-risk models. But these approaches are, however, technically complex, costly, difficult to explain to stakeholders, and politically risky. Therefore, it would seem advisable that resource-rich African countries adopt a stabilization/liquidity fund now that international prices are still relatively high by historical standards. Some countries have already gone this route (Box 5).

Resource Funds

Stabilization Fund offsets commodity price swings to smooth fiscal resource availability and government spending over the commodity cycle

Wealth Fund invests financial assets from resource extraction for use by future generations

Box 5: African Countries with Stabilization or Wealth Funds[1]

This box briefly describes the wealth funds and stabilization funds established by a number of African resource-rich countries.

- **Botswana** adopted in 1994 a Sustainable Budget Index Principle that ensures that resource revenue is invested or saved. Since then, a large stock of savings has been accumulated in its Pula Fund, which is managed by the Bank of Botswana. The fund also acts as stabilization mechanism when resources fall sharply (as occurred in 2009).
- **Nigeria** has adopted a budgetary rule whereby oil revenue is linked to a historical average of oil prices (adjusted in budget negotiations). Excess oil revenue is deposited in the Excess Crude Account. (ECA). Resources from this account can be drawn when revenues are short of the target. This took place in 2009, when oil prices dropped sharply, but it also happened in 2010 and 2011, despite the strong oil price recovery and contrary to ECA's stabilization function. In 2011, Parliament established a Sovereign Wealth Fund (SWF), with three components: a stabilization fund, a fund to finance domestic priority investments, and a fund for longer-term purposes. The SWF became operational in 2012.
- **Ghana** has recently put in place a legal framework governing oil revenue; oil revenue is calculated on the basis of a five year moving average. 70 percent of such revenue will be allocated to the budget and the rest split between a stabilization fund and a heritage fund.
- **Other** resource-rich countries (e.g., Angola, Chad, Guinea, Equatorial Guinea) have accumulated significant assets offshore, without formally establishing a stabilization or wealth fund.

[1]This box draws heavily form IMF, Sub-Saharan Africa, Regional Economic Outlook, April 2012

Wealth fund for inter-generational equity. Efficient use of resource rents also has an important time dimension. Resource-rich countries need to make the trade-off between extracting the resource now and leaving it in the ground for future generations. Moreover, for a variety of reasons (including uncertain future price developments) they may consider advisable to extract now, setting aside some of the proceeds for future use, in the form of financial assets. The exhaustible nature of natural resources calls for inter-temporal decisions about how much resource earnings to consume and invest, and how much to save.[80] This decision may involve a difficult socio-political process. While saving a portion of the resource earnings makes sense, a balance has to be found between the welfare of future generations and the immediate need to reduce poverty and invest in physical and human capital, which are critical for building an inclusive society and may well have a high social rate of return. This is especially so for African countries where such expenditure is crucially needed. Similarly, spending those resources beyond the economy's absorptive capacity is not desirable or optimal either because it will lead to the typical distortions associated with Dutch disease.[81] Thus for a lasting impact on development, part of the resource earnings needs to be saved. Moreover, the portion that is to be saved into a wealth fund is closely related to the value society attaches to inter-generational equity, and has important implications for short- and long-term macroeconomic policies, consistent with fiscal and external sustainability.[82]

Quality of public investment. A further key issue is the quality of the investment financed by the jump in earnings stemming from the resource boom, as this has implications for growth and economic diversification as well as for building an equitable society, with a well-designed social protection system. Many resource-rich African countries need to build up their project formulation and implementation capacity, as well as strengthening their capacity to enhance the quality and effectiveness of education and health services. They also need to increase their absorption capacity. These efforts are critically important, and require considerable time to bear fruit. Therefore, there is a need to avoid rushing into wasteful spending, which will certainly hinder achievement of the goals just mentioned.[83] Moreover, rushing may lead to an unwarranted real appreciation of the currency caused by jumps in non-tradable good prices, and thus an otherwise avoidable loss of competitiveness. Once both the absorption capacity of the economy and the ability of government officials to design and implement projects have been built, a cautious use of revenue from natural resources should play an important role in transforming the country.

Because the exploitation of mineral resources does not generally lead to significant increases in employment, given its capital-intensive nature, policy makers need to plan government spending and investment carefully, with a view to foster economic sustainability, including diversification. Enhancing infrastructure and human capital, removing bottlenecks and distortions, and encouraging ancillary activities, non-resource exports and other employment-intensive activities (especially agriculture,

[80] Despite their large resource earnings, many resource-rich African countries have had very low saving ratios to GDP.
[81] For instance, most oil-exporting African countries record very high levels of government spending in relation to non-resource GDP (around 50 percent of GDP), thereby generating intense price pressures on domestic resources.
[82] A priori, the shorter the reserve horizon, the more important are the intergenerational (and fiscal sustainability) considerations, and therefore the larger portion or resource earnings to be saved.
[83] It may also lead to significant governance, rent-seeking and corruption problems, which underscores the need to build and maintain sound institutions.

agroindustry and services) would help contain the real appreciation of the currency.[84] Moreover, diversification into these activities is critical for long-term development, as, over time, employment in mineral resources is likely to decline in relative (and in some countries in absolute) terms.

The fiscal rules or approaches described above, i.e., the non-resource primary balance and the structural primary balance, are key for fiscal policy to be consistent with the objective of building a wealth fund. The deficits in those balances (minus the overall budget deficit) represent the amount of resource earnings that is being consumed and/or invested by the government. To address the pressing needs that prevail in most resource-rich African countries, it would seem appropriate to target deficits that are somewhat larger in the early years of the resource boom (to enable some scaling up of high priority investment in human and physical capital and in poverty reduction)[85] and smaller in subsequent years, consistent with fiscal and external sustainability. The size of these deficits would also need to take account of the resource reserve horizon of the particular country. The shorter the time horizon, the smaller the deficit necessary to avoid an abrupt spending adjustment when resource revenue or the intergenerational fund are exhausted; such an adjustment would otherwise disrupt economic activity and the provision of services.

Having determined the portion of natural resource earnings to save in a wealth fund, countries need to decide how such a fund is to be managed. Chile's Economic and Social Stabilization Fund (ESSF, formerly the Copper Stabilization Fund; see Box 6) and Norway's Oil Fund offer good examples. Similarly, countries will also need to decide whether—and to what extent—it would be advisable that the wealth fund lend to the private sector given that the domestic capital market is underdeveloped, bearing in mind that such lending would add pressures on domestic resources.[86] Along the same lines, countries will need to decide how much to consume and invest from the wealth fund or from its return, balanced against the need to preserve the wealth for future generations.[87]

While discussing the tax regime appropriate for resource-rich countries is beyond the scope of this chapter, taxation on the non-resource sectors of the economy is closely related to the discussion on wealth funds. Many resource-rich countries worldwide reduced the tax burden on these sectors, given the high revenues from resource activities. This reduction (or subsidy) could help diminish the distortions of the tax system, but it would—obviously—lower the portion of resource earnings that could be saved into a wealth fund and, indirectly, add to pressures on domestic resources. Moreover, many countries (e.g., Angola, Mexico, Nigeria, Trinidad and Tobago, and Venezuela) with low tax revenue from the non-resource sectors experienced major adjustment needs and costs when they faced a severe drop in resource earnings due to a major decline in commodity prices. Again, society will need

[84] However, as the country becomes richer with the resource boom, some real appreciation of the currency is unavoidable.
[85] How much larger these deficits could be depends on the absorption capacity of the economy and the project formulation and implementation capacity, which should increase over time, and—linked to these issues—the need to avoid pushing up the price of non-tradable goods.
[86] Transparency and accountability should help direct such lending to socially profitable projects and thus avoid the temptation of lending to entities or individuals just because they are too closely associated with government officials.
[87] An approach based on the permanent income hypothesis would be advisable to guide such a decision, allowing for an initial period of higher spending to address pressing needs, as indicated above.

to balance these considerations when deciding on the portion of resource earnings to be saved in a wealth fund.

Box 6: Chile's Structural Overall Balance Rule and Wealth Funds[1]

Chile has been recognized for the rigor and boldness of its macroeconomic management and its ability to weather the boom and bust cycle of its main export, copper. It has applied the kinds of rules outlined in this chapter to deal with the cyclical nature of commodity prices and created two successful wealth funds.

The Structural Overall Balance Rule. Chile started implementing a structural fiscal balance rule in 2001 with the objective of determining the level of fiscal spending consistent with the government's structural revenue. This rule detaches such spending from fluctuations in the copper price, as well as in economic activity and other factors. This allows the government to save in boom times, and thus avoid drastic adjustments to fiscal spending during unfavorable economic periods. While initially implementation of the rule did not have legal backing, it was formalized under the Fiscal Responsibility Law (FRL) in 2006. In 2011, the Ministry of Finance created the Fiscal Council; its main role is to guarantee independence in the estimation of the structural variables and to verify the structural balance estimates.

The methodology to calculate the structural balance has been improved over time, mainly to better estimate structural revenue. For example, following the recommendations of an Advisory Committee, the 2011 budget excluded from structural revenue proceeds from temporary tax measures with a legal deadline, and cyclical adjustments to other revenue and to interest income on financial assets held by the Treasury.

The structural overall balance target has also changed over time. The target was set initially at a surplus of 1 percent of GDP, in order to cover the losses of the Central Bank of Chile. The surplus was reduced to ½ percent of GDP in 2008, as the government considered that the Economic and Social Stabilization Fund had accumulated substantial resources. In 2009, faced with the Global Crisis, the government reduced the target to zero. (The methodological change of 2011 implied that the 2009 target actually was a deficit of 3 percent of GDP.) The target has been adjusted since then and is expected to converge to a structural deficit of 1 percent in 2014.

The Economic and Social Stabilization Fund (ESSF). The ESSF replaced the Copper Stabilization Fund (which was created in 1985) in 2007, and has the same macroeconomic stabilization objectives, as established by the FRL. The ESSF aims at accumulating excess copper revenues when the price of copper is high in order to transfer resources back to the budget when the price of copper is low, thereby smoothing out government expenditure. The ESSF receives all fiscal surpluses that exceed 1 percent of GDP, the structural fiscal target until 2009 when the government implemented a fiscal stimulus package to counteract the adverse effects of the Global Crisis. In October 2011, the government adopted a series of measures recommended by a panel of experts to improve the transparency of fiscal policy and to minimize the discretion in its application.

The Central Bank of Chile appoints the members of the Financial Committee; they must have vast experience in the economic and financial areas. The Committee reports to the Ministry of Finance and is responsible for advising the Minister of Finance on long-term investment policy and all other matters related to investment, on selecting fund managers, and on the contents and structure of the reports of the ESSF. Although the ESSF does not report to Congress, good governance is assured by the fact that Congress decides on the government's budget. The General Treasury produces the Fund's financial statements in accordance with International Financial Reporting Standards.

Management of the ESSF follows the Generally Accepted Principles and Practices, known internationally as the "Santiago Principles", agreed by the International Working Group of Sovereign Wealth Funds (IWG-SWF) in Santiago, Chile in September 2008. In 2012 the government published a self-assessment of Chile's compliance with these voluntary principles with a view to improve the publicly available information about the ESSF and to show that it is managed in accordance with best international practices. 1/

As of end-2011, the market value of the assets of the ESSF amounted to US$13.2 billion. As a stabilization fund, it must remain relatively liquid and therefore has to take a short-term view regarding its investments; its return was 5.1 percent in 2011. External managers play a key role in managing the Fund's resources, although the Financial Committee defines the strategic allocations (66.5 percent in sovereign bonds, 30 percent in money market instruments, and 3.5 percent in inflation-indexed sovereign bonds; the currency exposure is 50 percent to the US dollar, 40 percent to the Euro and 10 percent to the yen). The Central Bank of Chile prepares daily, monthly, quarterly and annual reports on the state of the Fund and performance of its investments, which are submitted to the Ministry of Finance and the General Treasury.

The Pension Reserve Fund. It was also created in 2007, and its purpose is to address an expected future fiscal shortfall in the area of pensions and social welfare. Specifically, the fund backs the state guarantee for old-age and disability solidarity pension benefits, as well as the solidarity pension contribution, as established by the pension reform. Given its nature, the fund takes a longer-term view for its investments than the ESSF, and therefore it invests in a broader range of assets classes. As of end-2011, the fund had accumulated US$4.4 billion. The fund must receive a minimum annual contribution of 0.2 percent of GDP. If the fiscal surplus exceeds this amount, the contribution can be increased by the amount of the surplus up to 0.5 percent of the previous year's GDP. The Fund is managed in a similar fashion as the ESSF.

[1]See Chile, Ministry of Finance. Chilean Self-Assessment of Compliance with Santiago Principles, January 2012

Monetary and Exchange Rate Framework. The stability/liquidity fund and the wealth fund, to the extent they can be set up and made to work, would help considerably in the conduct of monetary policy, as the first removes the pro-cyclicality of fiscal spending and the second prevents the excessive pressure on domestic resources that a natural resource boom would cause. Similarly, in a more stable macroeconomic environment, exchange rate tensions will be significantly less than otherwise.

The combination of the two funds provide a strong foundation for monetary policy to be based on an Inflation Targeting (IT) Framework, especially given the absence of fiscal dominance (i.e., that government deficits do not condition the growth of money supply). Some African countries are already using such a framework with success. Others will require time to develop the conditions necessary for its introduction. The IT framework will allow the implementation of a flexible exchange rate policy, which will, in turn, help reduce the impact of external shocks.[88]

Some resource-rich African countries have a fixed exchange rate or are part of a currency union, most notably those in the West African Economic and Monetary Union (WAEMU) and the Central African Economic and Monetary Union (CAEMU). If these regimes continue, it would be important that credit policy remain cautious and consistent with preserving external competitiveness. The combination of the two funds provides a similar strong foundation for such a policy.

B. Broad Economic Policy Measures:

To **invest their resource rents to create the basis for sustainable growth and foster a diversified private sector,** policy makers will need to:

- Apply the recommendations found elsewhere in this report, specifically those relating to investment in human capital (health and education) and in infrastructure.
- Accelerate economic integration based on a common light-handed regulatory framework across the region, reducing trade barriers and administrative red tape.[89]
- Invest in cost-effective regional infrastructure to achieve geographic integration to bring down logistics costs.
- Standardize educational standards across the region to enable a greater degree of interoperability between Africa's workers and achieve regional labor force integration.
- Set in place much more business-friendly regulations and administrations to nurture indigenous companies and attract foreign investors.

Nurturing the development of resource clusters. Although downstream processing may not have been a very significant success in Africa because of the continent's geographic and other disadvantages (low infrastructure endowment, low labor productivity), the extractive industries have over the years created

[88] The argument that a flexible exchange rate regime will lead to an unwarranted appreciation of the currency and that a fixed exchange rate regime will not is misleading. If the conditions for a real appreciation are present, it will happen irrespective of the exchange rate regime: through a nominal and thus real appreciation under the flexible regime or through a rise in the price of non-tradable goods. To avoid such conditions, the key is for policies to create the basis for sustained improvements in competitiveness of the non-resource tradable sectors including through investment in human and physical capital and the removal of bottlenecks and distortions, as discussed above.

[89] Africa will need to develop to a much greater extent its existing economic areas such as ECOWAS, SADC and COMESA.

positive spinoffs in other ways. Most notably, ecosystems of firms providing support functions to oil, gas and mining operations have emerged organically around the extractive sector. For example, West African oil producers like Cameroon and Nigeria have seen the creation of internationally competitive support firms in oil logistics, maintenance and other associated services, some of which started as subsidiaries of international firms and others as local startups. South Africa has a record in the mining industry of harboring the best providers of mining services, from geologists and mining engineers to specialized banks, which now operate internationally. These clusters provide employment, create world-class capacity and possess strong links into the rest of the economy, and are a model for African resource-based sectors going forward. They are not significantly capital intensive and have been good at creating specialized human capacity, often of a world class nature.

In addition to sound macroeconomic policies and effective management of public finances through fiscal rules and funds, governments can proactively seek to nurture these related-industry clusters to increase the positive spillovers of their natural resource sectors. This will require creating a business-friendly regulatory environment and economy, and providing specialized targeted infrastructure. For example, a country with offshore oil production might target the development of its port, an efficient low-cost ICT infrastructure and a modern commercial legal framework that favor the installation of service firms for the delivery of services such as offshore platform maintenance, cleaning and hospitality, oil-field geology and crude oil trading. High quality and low cost communications services will allow local firms to bid for projects outsourced from the headquarters of producing companies. Ease of setting up firms and simplified tax procedures will lower the barriers to entry for local entrepreneurs. Availability of visas and work permits for foreign workers will allow them to work locally, facilitating the transmission of skills.

APPENDIX: Model for Developing Global Growth Scenarios

This study estimates GDP as a function of labor force, capital stock, and total factor productivity for 187 countries between 2013 and 2050 under three different growth scenarios, the "Convergence Scenario", "Business as Usual Scenario", and the "Downside Scenario". This section offers an abbreviated description of the model; a more detailed exposition, in Kohli, Szyf, and Arnold (2012), is available on request.[90]

As seen in equation (1), a Cobb-Douglas function with constant returns to scale is assumed, with α equal to two-thirds:

$$GDP = TFP \times L^{\alpha} \times K^{1-\alpha} \qquad (1)$$

where *TFP* is total factor productivity, *L* is labor, and *K* is capital stock.

GDP figures are generated for three different measures: real GDP (constant 2010 prices); GDP PPP (constant 2010 PPP prices); and GDP at expected market exchange rates, which incorporates expected exchange rate movements and serves as the best proxy for nominal GDP.

The model first estimates annual real GDP growth for each country between 2013 and 2050. These estimates are applied to the previous values of real GDP, GDP PPP, and a measure equal to nominal GDP deflated by US inflation (on which GDP at market exchange rates is based) to derive the full series. Finally, to derive GDP at market exchange rates, real exchange rate changes are estimated and multiplied by nominal GDP deflated by US inflation to obtain GDP at market exchange rates.

Labor force growth stems from population growth and from changes in labor force participation rates. Population growth is based on the medium variant of the 2010 Revision of the UN's World Population Prospects, while labor force participation rates are projected separately, by gender, for seven age cohorts (15–19, 20–24, 25–29, 30–49, 50–59, 60–64, and 65+) to better capture cohort-specific trends. Male rates are projected directly; female rates are derived by projecting the difference between male and female rates for each age group. Labor force participation rates from 1980 through 2012 are taken from the International Labor organization.

The cross-country, cohort-specific equations to forecast male rates are simple autoregressions of the following form:

$$\ln(M_{age,t}) = m_{age} \times \ln(M_{age,t-1}) \qquad (2)$$

where M is the percent of males in age group age who are active in the labor force and m age is a constant that varies for each age group.

[90] This appendix is based on Kohli, Szyf, & Arnold (2012)

The cross-country, cohort-specific equations to forecast the differentials between male and female participations rates are:

$$\ln(D_{age,t}) = d_{age} \times \ln(D_{age,t-1}) \quad (3)$$

where D_{age} equals the difference between the percentage of males in age group age in the labor force and the percentage of females in age group age in the labor force, and d_{age} is a constant that varies by age group. In both male and female models, for certain cohorts, rough upper or lower bounds are incorporated to address outliers. Observations that begin in 2012 beyond these bounds are not governed by the regressions but instead gradually converge over time towards the bounds.

Capital stock growth, based on an initial capital stock and yearly investment rates and depreciation, is defined as:

$$(1 + K\ Growth_t) = \frac{K_t}{K_{t-1}} = \left(\frac{I_{t-1}}{K_{t-1}}\right) - 0.06 \quad (4)$$

where *K* is the capital stock, 0.06 represents the yearly depreciation of 6%, and I_{t-1} is the capital investment from the previous year, which is defined as the previous year's GDP (measured in constant 2010 PPP dollars) multiplied by the investment rate as a share of GDP.

The initial capital stock is calculated using the Caselli method, with the following equation:

$$K_0 = \frac{I_0}{g + 0.06} \quad (5)$$

where *K* is the initial capital stock, *g* is the average GDP growth over the subsequent ten years, 0.06 is the depreciation rate, and I is the initial year's investment. For *I*, for each country, the earliest year for which there exists capital investment data (year y) is identified. The average of the investment rate values for year y and the two subsequent years is computed and treated as the initial investment rate. This smoothing out of fluctuations in the initial investment rate yields better estimates for certain countries with high volatility in the earliest investment rate values. This rate is then multiplied by the GDP in year y to determine I. The earliest year possible is chosen for this estimate because the longer the timeframe before the projections commence the more the yearly depreciations will reduce the effects on the model of any initial imprecisions in capital estimates.

The model is calibrated by calculating total factor productivity (TFP) for an initial year (2012)[91] based on labor force, capital stock, and historical GDP, with GDP and capital stock measured in purchasing-power-parity dollars at constant 2010 PPP prices. For subsequent years, TFP is projected.

For the TFP projections, we differentiate four categories: rich or developed; converging; non-converging; and fragile. All countries begin with a default TFP growth rate of 1 percent which, with a strong level of statistical significance, equals the average US rate over the past 40-, 30-, 25-, and 20-years, and which, also with a strong level of statistical significance, equals the average rate of all non-converging countries over the same four periods. In our model, this is the fixed rate of productivity growth for the category of non-converging countries. For this study, different scenarios have been created in which each country's convergence status falls under varying sets of assumptions. These scenarios are described in detail later in this section.

Research shows that some growth differences between developing countries can be successfully modeled by separating them into two groups: converging and non-converging countries (Gill and Kharas, 2007).

A country is deemed to be converging at the start of the projection period if its per-capita income has rapidly converged over a 20-year period to that of best practice economies or if its 2001–2011 TFP growth is closer to what the model would predict for a converger (see below) than to what it would predict for a non-converger; the lower a country's productivity relative to the global best practice, the faster the rate at which it converges. This convergence reflects technology transfers from richer innovating countries, technology leapfrogging, the diffusion of management and operational research from more developed countries, and other ways that a country can shortcut productivity-improvement processes by learning from economies that are already at the productivity frontier.

In the model, the lower a converging country's productivity relative to that of the US, the larger the boost and the quicker the pace of catch-up.[92] The productivity growth of 14 of the 36 rich countries is treated the same as that of converging countries. Non-converging countries and 22 of the 36 rich countries maintain the default 1 percent yearly productivity growth and hence experience no convergence boost. The rich countries are divided into these categories based on their past TFP performance. The general equation for TFP growth is:

$$TFP\ Growth = 1.0\% + CB - FP \qquad (6)$$

where *CB* is the convergence boost benefiting "converging" countries and *FP* is the productivity growth penalty suffered by fragile states.

[91] IMF WEO GDP growth projections are used for 2012 and 2013.

[92] TFP is used in the convergence term instead of the per-capita income used by others for three reasons: first, if the equation were to use GDP per capita, over time the TFP of a converging country would not converge to that of the US but instead to other values. Also, since the convergence equation represents convergence of TFP, we use TFP in order to make the equation consistent with its purpose. Third, using the convergence coefficient from past research in tandem with an income-based convergence term yields large discrepancies with the recent historical data for TFP growth for many countries; using TFP yields a better fit.

The convergence boost is defined as follows:

$$CB = c \times 2.69\% \times \ln\left(\frac{TFP_{USA,t-1}}{TFP_{i,t-1}}\right) \quad (7)$$

where *i* is the country, 2.69 percent is the convergence coefficient (derived from historical data), *TFP* is total factor productivity, and *c* takes a value between 0 and 1 and identifies whether a country is treated as a converger (c =1) or as a non-converger or fragile state (c =0), or in an intermediate state of transition between being a converger and non-converger (0 < c < 1).

The productivity growth penalty for fragile states, FP, is defined as:

$$FP = f\ x\ 1.5\% \quad (8)$$

where *f* plays a role analogous to that of c in equation (7) above. For each fragile country, f is set equal to 1, corresponding to a penalty in productivity growth of 1.5 percent, so that its productivity is assumed to fall by 0.5 percent a year. The coefficient of negative 1.5 percent is derived by identifying state failures and debilitating wars prior to the global financial crisis that lasted at least 2 consecutive years in 44 countries, and analyzing their effects on growth. The list of fragile states in Africa is the harmonized list prepared by the African Development Bank and the World Bank.

The projections of GDP growth are completed by applying the labor growth, capital deepening, and productivity changes to each country over the period 2013–2050.

The measure of GDP at expected market exchange rates adjusts the GDP estimate by expected changes in the real exchange rate. First, an equation is derived to establish a theoretical relationship between a country's real exchange rate and its PPP income relative to that of the US. Then, the country's modeled exchange rate converges towards the value that corresponds to its income in this theoretical equation. These relationships are not linear, and the countries for which increases in GDP PPP per capita lead to the largest appreciation of their real exchange rates are the countries whose incomes are between a third and two-thirds that of the United States, and not the poorest or richest countries.

The model also projects the sizes of the low, middle, and high-income populations, again following Kharas, by measuring the number of people in each country with living standards—in PPP terms—within a certain absolute range. An income distribution for each country is derived from the World Bank's International Comparison Program.

The model calculates what share of the nation's income is available for consumption, and it distributes this consumption income over the population according to the income distribution. As the country's overall consumption income increases, the purchasing power of those at the bottom of the distribution increases, raising more to middle-income status.

For purposes of computing consumption income classes, the model projects changes in the share of the country's income available for consumption using the following equation:

$$\ln(C_{i,t}) = \alpha_1 \times \ln(C_{i,t-1}) + \alpha_2 \times \ln(GDPPCCap_{i,t}) + \alpha_0 \quad (9)$$

where *t* is the year, *i* is the country, *C* is the ratio of consumption to GDP, *GDPPCCap* is the minimum of each country's GDP PPP PC and $50,000 PPP (in 2010 PPP international dollars), and α_0, α_1 , and α_2 are constants.

The study makes separate projections for three different growth scenarios: the "Convergence Scenario", the "Business as Usual Scenario", and the "Downside Scenario". The difference between the scenarios is how countries are classified at the outset, either as converging, non-converging, or fragile, and how countries gradually transition between classifications.

For 145 countries the initial classification is based on the Kharas classification and for an additional 42 countries on a similar analysis of recent data. Under this classification, four African countries (Botswana, Cape Verde, Mauritius, and Mozambique) are classified as "convergers".

For the Convergence Scenario, a group of 15 additional African countries join the convergers listed above, and are referred to in the study as "early convergers". This group of 15 countries begins to converge this decade (up to 2020). An additional group of 15 "late convergers" begins converging in the following decade (up to 2030). The remaining 20 countries currently considered "fragile" transition out of fragility over the next 30 years.

Under the "Business as Usual Scenario" the convergence picture remains the same as today. Four African countries that are currently converging are assumed to continue converging through 2050. All current non-convergers continue to not converge, and all fragile countries remain fragile.

In the "Downside Scenario" an additional five countries become fragile, non-convergers do not converge, and the four convergers stop converging. This scenario also includes cyclical fluctuations in Africa's terms of trade. Specifically starting in 2015 the terms of trade deteriorate by 15 percent over 5 years and then recover by 15 percent over the subsequent 10 years, after which this cycle repeats.

In all three scenarios, the transition of individual countries between converging and non-converging, or from fragile to non-converging, is gradual. That is, countries are made to adopt an intermediate state between fragile and not-fragile or between converging and non-converging, by varying the values of f and c in equations (7) and (8).

Annex 1: Methodological Notes

First, *Chapter 4: Demography* offers a demographic analysis of all African countries between 2010 and 2050, using primarily the United Nations 2010 World Population Prospects and 2011 World Urbanization Prospects, as well as the most recent data from DHS and MICS surveys not available in 2010. The analysis also refers to the framework of the "Convergence Model", which was adopted for the entire Africa 2050 study.

Second, this chapter covers the 53 sovereign countries of Africa. South Sudan, which became independent in July 2011, is not included in this chapter because of the lack of reliable data. The population of South Sudan was estimated by the World Bank at 10.3 million people in mid-2011; this estimate has to be confirmed by a new population census, which should be conducted shortly. Other demographic indicators for South Sudan (e.g., expectancy of life at birth, total fertility rate, contraceptive prevalence rate, etc.) were not available at the time of this report writing.

Third, this chapter uses the United Nations classification of countries where South Sudan is listed in Eastern Africa, and Sudan, listed in Northern Africa (see also Population Reference Bureau 2012). This UN classification lists the countries, as follows:

> *Northern African*: Algeria, Egypt, Libya, Morocco, Sudan & Tunisia
>
> *Western Africa*: Benin, Burkina Faso, Cape Verde, Côte d'Ivoire, Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Mali, Mauritania, Niger, Nigeria, Senegal, Sierra Leone &Togo
>
> *Eastern Africa*: Burundi, Comoros, Djibouti, Eritrea, Ethiopia, Kenya, Madagascar, Malawi, Mauritius, Mozambique, Rwanda, Seychelles, Somalia, Uganda, United Republic of Tanzania, Zambia & Zimbabwe (plus South Sudan, not included in this chapter)
>
> *Middle (or Central) Africa*: Angola, Cameroon, Central African Republic, Chad, Congo Republic, Democratic Republic of the Congo (DRC), Equatorial Guinea, Gabon & Sao Tome and Principe
>
> *Southern Africa*: Botswana, Lesotho, Namibia, South Africa & Swaziland

Annex 2: Demographic Indicators Estimated by the United Nations for 2010 and 2005-2010 and Most Recent Fertility Estimates from 2009-2012 Surveys, by Sub-Region

	Population 1000s 2010	TFR UN Estimates 2005-10	Recent surveys results	Date of survey and period of reference	Difference with UN estimates	E(0) UN Estimates 2005-10	% urban Population 2010	Number of Cities in 2010 over 750,000
Eastern Africa								
Burundi	8 383	4.7	6.40	2010 DHS (3 years)	1.7	48.8	10.6	
Comoros	735	5.1				59.7	28.0	
Djibouti	889	4.0				56.6	77.0	
Eritrea	5 254	4.7				60.0	20.9	
Ethiopia	82 950	4.6	4.80	2011 DHS (3 years)	0.2	57.2	16.8	1
Kenya	40 513	4.8				55.0	23.6	2
Madagascar	20 714	4.8				65.8	31.9	1
Malawi	14 901	6.0	5.70	2010 DHS (3 years)	-0.3	51.6	15.5	1
Mauritius	1 299	1.7				72.8	41.8	
Mozambique	23 391	5.1	5.90	2011 DHS (3 years)	0.8	48.8	31.0	2
Rwanda	10 624	5.4	4.60	2010 DHS (3 years)	-0.8	53.9	18.8	1
Seychelles	87	2.0				73.0	53.2	
Somalia	9 331	6.4				50.2	37.3	1
Uganda	33 425	6.4	6.20	2011 DHS (3 years)	-0.2	52.2	15.2	1
Tanzania	44 841	5.6	5.40	2010 DHS (3 years)	-0.2	55.4	26,3	1
Zambia	13 089	6.2				46.9	38.7	1
Zimbabwe	12 571	3.5	4.10	2010-11 DHS (3 years)	0.6	46.6	38.1	1
Middle Africa								
Angola	19 082	5.8				49.6	58.4	2
Cameroon	19 599	4.7	5.10	2011 DHS (3 years)	0.4	50.0	51.5	2
Cen. Af. Rep.	4 401	4.8				45.9	38.8	
Chad	11 227	6.2	6.90	MICS 2010 (5 years)	0.7	48.5	21.7	1
Congo	4 043	4.6	5.10	2011-12 DHS (3 years)	0.5	56.0	63.2	2
DR Congo	65 966	6.1	6.30	MICS 2010 (12months)	0.2	47.4	33.7	5
Eq. Guinea	700	5.4				50.1	39.3	
Gabon	1 505	3.4	4.10	2012 DHS (3 years)	0.7	61.3	85.8	
Sao T.& P.	165	3.9	4.90	2008-09 DHS (3 years)	1.0	63.8	62.0	
Northern Africa								

Algeria	35 468	2.4				72.3	72.0	2
Egypt	81 121	2.9				72.3	43.4	2
Libya	6 355	2.7				74.0	77.6	1
Morocco	31 951	2.4				71.2	56.7	6
Sudan	43 552	4.6	5.60	MICS 2010 (3 years)	1.0	60.3	33.1	1
Tunisia	10 481	2.0				73.9	66.1	1
Southern Africa								
Botswana	2 007	2.9				53.3	61.0	
Lesotho	2 171	3.4	3.30	2009 DHS (3 years)	-0.1	46.0	26.8	
Namibia	2 283	3.4				61.1	37.8	
South Africa	50 133	2.6				51.2	61.5	7
Swaziland	1 186	3.6	3.70	MICS 2010 (3 years)	0.1	47.4	21.3	
Western Africa								
Benin	8 850	5.5	4.90	DHS 2011-12 (3 years)	-0.6	54.6	44.3	1
Burkina	16 469	5.9	6.00	MICS 2010 (3 years)	0.1	53.9	25.7	1
Cape Verde	496	2.6				73.5	61.8	
Côte d'Ivoire	19 738	4.6	5.00	DHS 2011-12 (3 years)	0.4	53.0	50.6	2
Gambia	1 728	5.1				57.3	56.7	
Ghana	24 392	4.3				62.7	51.2	2
Guinea	9 982	5.5	5.10	DHS 2012 (3 years)	-0.4	52.4	35.0	1
G-Bissau	1 515	5.3	5.10	MICS 2010 (2 years)	-0.2	46.8	43.2	
Liberia	3 994	5.4	5.90	2009 MIS (3 years)	0.5	54.4	47.8	1
Mali	15 370	6.5				50.0	34.3	1
Mauritania	3 460	4.7				57.5	41.2	1
Niger	15 512	7.2	7.60	DHS 2012 (3 years)	0.4	53.1	17.6	1
Nigeria	158 423	5.6	5.70	MICS 2011(2 years)	0.1	50.3	49.0	14
Senegal	12 434	5.0	5.00	DHS 2010-11 (3 years)	-0.03	58.2	42.3	1
Sierra Leone	5 868	5.2	4.30	MICS 2010 (12months)	-0.9	46.3	38.9	1
Togo	6 028	4.3	4.80	MICS 2010 (12months)	0.5	55.7	37.5	1
Number of countries	53			28	28		Countries	36
						Number	of cities	73

Sources: United Nations 2011, and DHS and MICS 4 surveys results (final or preliminary results).

Annex 3: The 2010 United Nations Assumptions on Population and Urbanization

The 2010 United Nations World Population projections' assumptions made up until 2050 (one assumption for mortality and international migration, and three assumptions for fertility decline: Medium, High and Low) are presented in Table A7.1 for the five sub-regions of the continent. The assumption made for urbanization until 2050 in the 2011 United World Urbanization projections is also presented.

Under the Medium variant, the TFR for Africa decreases by 1.9 children between 2005-2010 and 2045-2050 (from 4.6 to 2.8 children per woman), and by 2.3 children for sub-Saharan Africa (from 5.1 to 2.9 children per woman). The most rapid decline: minus 3.2 children over the 40 years period considered, is projected for Middle Africa, and the least rapid declines are those projected for Northern and Southern Africa: minus 0.9 children in both cases. By construction, the fertility declines projected for the High variant are 0.5 children higher than the decline of the Medium variant, and 0.5 children less with the Low variant.

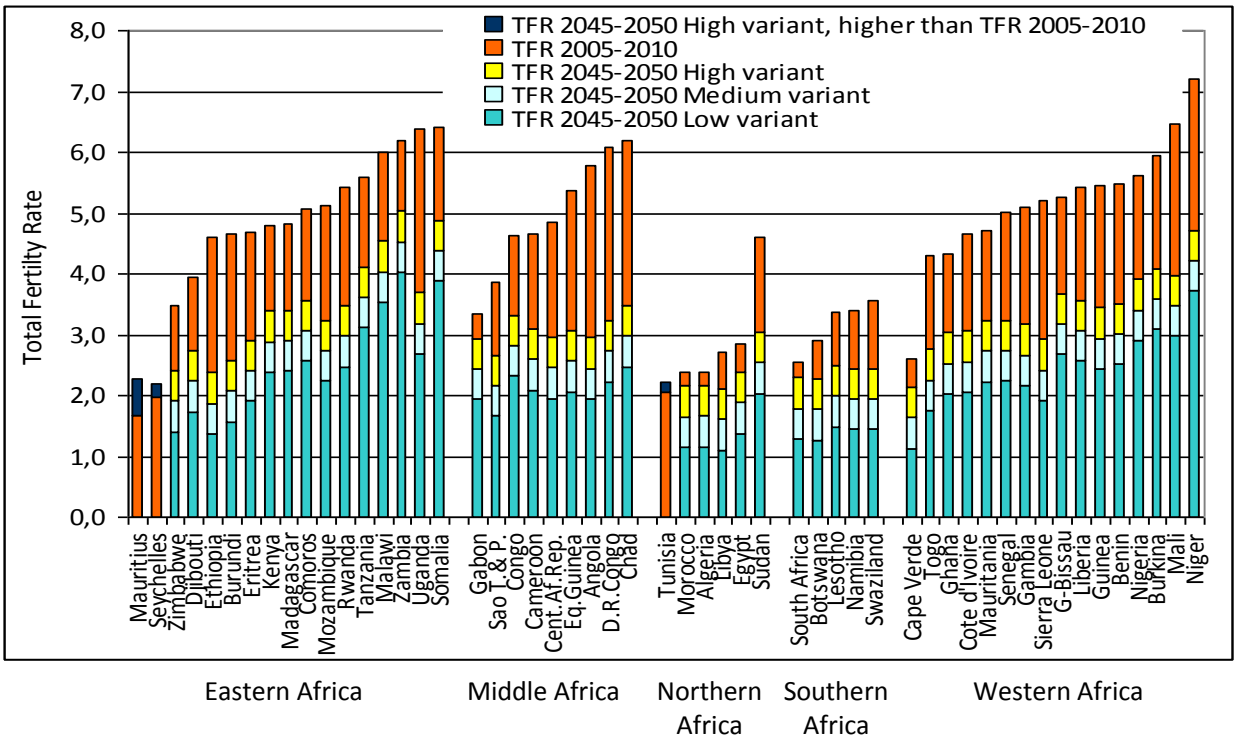
These figures are the weighted average of the fertility assumptions made for each country. Initial total fertility rates (the 2005-2010 TFRs) were estimated on the basis of the information available for each country in 2010. Then, as already explained, the Medium variant was built by projecting these TFRs up to 2045-2050 according to three models of decline, yielding varying fertility declines between 2005-2010 and 2045-2050. Next, the High and Low variants were derived from the Medium variant. The corresponding figures are presented in Figure A7.1. With the Medium or central variant, TFRs are projected to remain above 3 children per women by 2045-2050 for a quarter of the countries (13). But with the High variant, TFRs are projected to remain above 3 children per woman in more than half of the countries (29 countries or 55% of the population), which is above what can be considered as the minimum level necessary to have lower dependency ratios. With the Low variant, only six countries (11%) have TFRs above 3 children per woman (these are countries with initial high TFRs and in four cases landlocked countries). For the 40 years considered, these 2045-2050 projected TFRs imply for the Medium variant a decline of 2 to 3.3 children for half of the countries (28 or 53%), for the Low variant a decline of 2 to 2.8 children for 40 countries (75%), and for the High variant of a decline of 2 to 3.8 children for 11 countries (21%).

Table A7.1: Assumptions made in the 2010 United Nations population projections and the 2011 United Nations urbanization projections for Africa and African sub-regions until 2050

	Initial values	Medium variant	High Variant	Low Variant
Periods	2005-2010	2045-2050	2045-2050	2045-2050
Total fertility rate (number of children per woman)				
Africa	4.64	2.77	3.25	2.29
Sub-Saharan Africa	5.10	2.85	3.34	2.37
Eastern Africa	5.11	2.89	3.37	2.41
Middle Africa	5.67	2.52	3.01	2.02
Northern Africa	2.97	2.03	2.52	1.55
Southern Africa	2.64	1.79	2.29	1.29
Western Africa	5.48	3.27	3.76	2.77
Life expectancy at birth, both sexes combined (years)				
Africa	55.2	68.2		
Sub-Saharan Africa	52.5	66.7		
Eastern Africa	54.4	68.0		
Middle Africa	48.5	62.9		
Northern Africa	69.4	77.1		
Southern Africa	51.3	64.1		
Western Africa	52.3	66.7		
Net migration (per year), both sexes combined (thousands)				
Africa	-628	-440		
Sub-Saharan Africa	-397	-312		
Eastern Africa	-365	-108		
Middle Africa	+7	+22		
Northern Africa	-204	-141		
Southern Africa	+138	+5		
Western Africa	-205	-174		
Percentage of population residing in urban areas				
Years	2010	2050		
	Initial values	Medium variant		
Africa	39.2	57.7		
Sub-Saharan Africa	36.3	56.5		
Eastern Africa	23.3	44.7		
Middle Africa	40.9	61.5		
Northern Africa	51.2	65.3		
Southern Africa	58.5	74.0		
Western Africa	44.3	65.7		

Sources: United Nations 2011 and 2012a.

Figure A7.1: Low, Medium and High total fertility rates assumptions in 2045-2050 compared with the total fertility rates estimated in 2005-2010 by increasing order for each region



Source: United Nations 2011

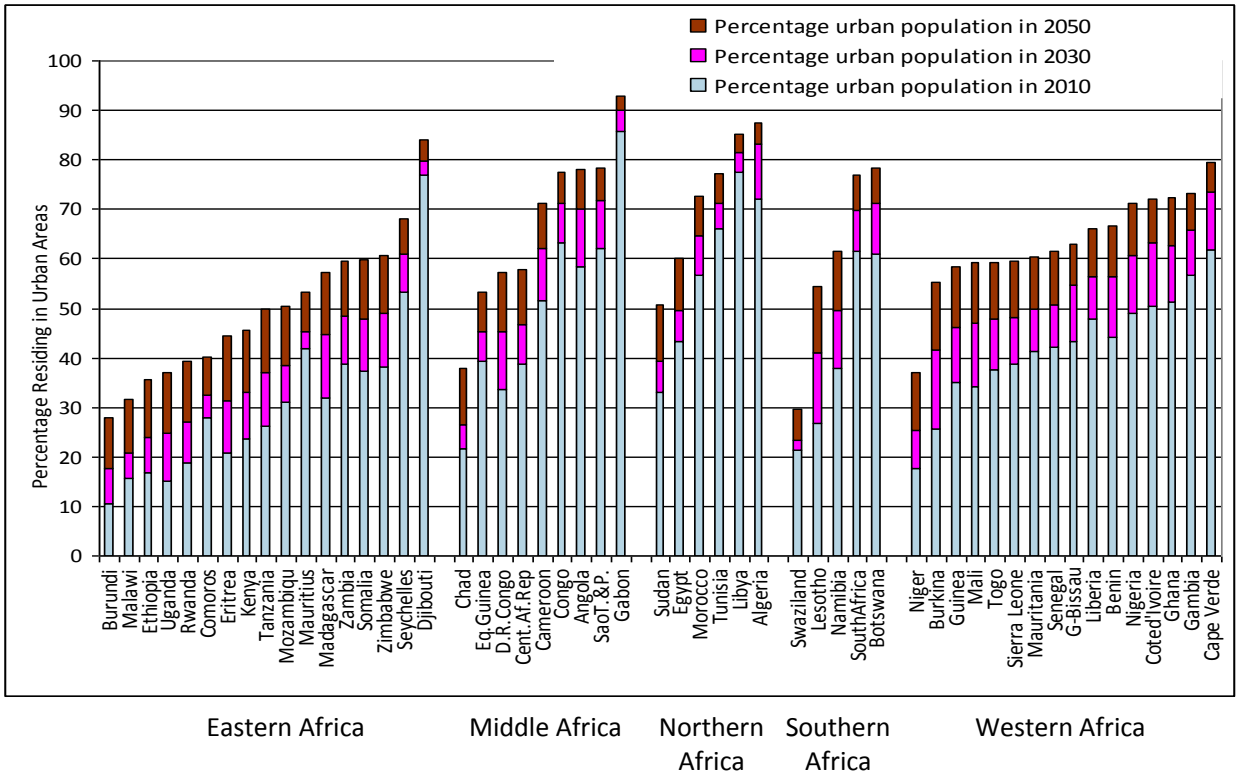
These fertility declines appear rather optimistic for many countries given the recent fertility trends observed (see Figures 4.4 and 4.6) and the persistent low levels of contraceptive use associated with them (see Figures 4.7 and 4.8). Based on this evidence, for many countries fertility might well decline more slowly than anticipated under the 2010 UN Medium variant, and for several countries (e.g., in the Sahel), even more slowly than anticipated under the 2010 UN High variant. This point is important because if fertility declines are slower than those projected under the Medium or even the High variants, dependency ratios will remain high, which will prevent many countries from achieving the demographic prerequisites needed to capture a demographic dividend.

Concerning urbanization, the initial percentages of the population living in urban areas in 2010 in each African country and their future levels were estimated and projected to 2050 by the United Nations in their 2011 World Urbanization Prospects (United Nations 2012a). These data are presented in Figure 12. The projected percentage increases of the population living in urban areas vary of course from one country to another, depending on several factors (initial percentages, past trends, etc.[93]). Given the relatively low levels of urbanization of many African countries in 2010, the projected percentage increases are relatively large. They range from 20 to 30 percentage points for 21 countries between 2010 and 2050, and between 10 percentage points and less than 20 percentage points for half (28) of the countries. The increase is less than 10 percentage points only for Gabon, Djibouti, Libya (which had

[93] For more details, see World Urbanization Prospects, The 2011 Revision, Methodology http://esa.un.org/unpd/wup/pdf/WUP2011_Methodology.pdf.

high urbanization rates in 2010), and Swaziland. As a result, whereas in 2010 only one country out of three (17) had a majority of its population living in urban areas (all coastal countries but one, Botswana), in 2050 there will be 42 countries, four out of five, with a majority of their population living in urban areas. Among the 11 remaining countries with still a majority of their population living in rural areas by 2050, most are Eastern African countries, and most are landlocked countries (Burundi, Swaziland, Malawi, Ethiopia, Rwanda, Uganda, Niger, and Chad). Overall this means that a majority of African people will be living in urban areas by 2035, and nearly 60% by 2050 (58% in sub-Saharan Africa).

Figure A7.2: Projected percentage of the population residing in urban areas between 2010 and 2050 of African countries, by increasing order for each region



Source: United Nations 2012a.

Annex 4: Urban Land Cover Projections for Countries of Africa, 2010-2050

Country	Urban Land Cover, 2000 (Hectares)	Annual Density Decline (%)	Urban Land Cover Projections (hectares)				
			2010	2020	2030	2040	2050
Algeria	341,628	0	441,035	546,608	638,411	713,574	775,619
		1	487,419	667,628	861,765	1,064,527	1,278,779
		2	538,681	815,443	1,163,260	1,588,088	2,108,350
Angola	57,528	0	91,210	134,553	185,074	241,941	302,589
		1	100,803	164,344	249,823	360,933	498,885
		2	111,404	200,730	337,226	538,449	822,522
Benin	85,489	0	128,085	187,638	266,593	360,180	462,223
		1	141,555	229,181	359,862	537,325	762,077
		2	156,443	279,922	485,764	801,595	1,256,452
Botswana	26,790	0	34,759	42,611	49,907	56,885	63,795
		1	38,414	52,046	67,367	84,862	105,180
		2	42,455	63,569	90,937	126,599	173,412
Burkina Faso	37,074	0	61,811	102,022	162,496	242,880	341,133
		1	68,311	124,611	219,347	362,334	562,433
		2	75,496	152,200	296,087	540,539	927,296
Burundi	5,167	0	9,838	18,065	31,931	54,718	88,414
		1	10,873	22,065	43,103	81,630	145,771
		2	12,016	26,950	58,183	121,778	240,335
Cameroon	67,115	0	97,449	129,754	162,017	194,254	224,689
		1	107,698	158,482	218,701	289,793	370,450
		2	119,025	193,570	295,215	432,321	610,768
Cape Verde	4,649	0	6,684	8,981	11,317	13,605	15,638
		1	7,387	10,970	15,276	20,297	25,782
		2	8,164	13,399	20,620	30,279	42,508
Cen Afr Republic	17,868	0	21,973	28,358	36,979	47,030	57,590
		1	24,284	34,636	49,916	70,161	94,950
		2	26,838	42,305	67,380	104,667	156,546
Chad	30,062	0	49,160	79,029	124,033	182,673	253,365
		1	54,330	96,527	167,427	272,516	417,729
		2	60,044	117,898	226,002	406,546	688,718
Comoros	2,932	0	3,798	5,122	7,224	9,958	12,983
		1	4,198	6,256	9,751	14,856	21,405
		2	4,639	7,641	13,163	22,163	35,292
Congo, Dem. Rep.	120,291	0	193,283	312,105	479,821	693,986	939,523
		1	213,610	381,205	647,690	1,035,305	1,549,012
		2	236,076	465,605	874,290	1,544,493	2,553,888
Congo, Rep.	21,168	0	28,237	36,895	46,775	57,330	67,682
		1	31,207	45,064	63,140	85,526	111,589
		2	34,489	55,041	85,230	127,590	183,979
Cote d'Ivoire	85,926	0	118,266	159,400	204,093	250,415	295,922
		1	130,704	194,691	275,497	373,576	487,893
		2	144,450	237,796	371,882	557,309	804,400
Egypt, Arab Rep.	260,941	0	313,174	383,490	477,936	589,404	695,724
		1	346,111	468,396	645,146	879,287	1,147,055
		2	382,512	572,100	870,856	1,311,743	1,891,174

Country	Urban Land Cover, 2000 (Hectares)	Annual Density Decline (%)	Urban Land Cover Projections (hectares)				
			2010	2020	2030	2040	2050
Equatorial Guinea	3,962	0	5,133	7,113	10,013	13,531	17,490
		1	5,673	8,688	13,516	20,186	28,836
		2	6,269	10,612	18,245	30,114	47,542
Eritrea	5,896	0	10,339	17,148	26,104	37,822	51,711
		1	11,426	20,945	35,236	56,424	85,257
		2	12,628	25,582	47,564	84,175	140,565
Ethiopia	120,328	0	182,980	283,614	436,250	642,808	898,806
		1	202,224	346,406	588,876	958,957	1,481,881
		2	223,492	423,102	794,899	1,430,596	2,443,209
Gabon	14,026	0	17,697	21,007	24,027	26,650	28,807
		1	19,558	25,659	32,432	39,757	47,495
		2	21,615	31,339	43,779	59,310	78,306
Gambia, The	12,023	0	18,977	26,473	34,804	43,615	52,260
		1	20,972	32,335	46,980	65,066	86,163
		2	23,178	39,494	63,417	97,067	142,058
Ghana	263,057	0	380,554	514,953	657,802	803,391	940,988
		1	420,577	628,965	887,939	1,198,518	1,551,427
		2	464,809	768,220	1,198,593	1,787,979	2,557,871
Guinea	23,513	0	32,738	49,606	72,620	100,525	131,951
		1	36,181	60,589	98,027	149,966	217,550
		2	39,987	74,004	132,323	223,723	358,679
Guinea-Bissau	3,560	0	4,863	7,216	11,341	17,243	24,558
		1	5,375	8,813	15,309	25,723	40,490
		2	5,940	10,765	20,665	38,375	66,756
Kenya	64,754	0	94,668	144,226	217,780	314,218	428,415
		1	104,624	176,159	293,973	468,758	706,337
		2	115,628	215,161	396,821	699,305	1,164,552
Lesotho	7,281	0	10,626	14,448	18,440	22,465	26,446
		1	11,744	17,647	24,892	33,514	43,603
		2	12,979	21,554	33,600	49,998	71,889
Liberia	3,808	0	6,062	9,080	13,134	18,134	23,661
		1	6,699	11,090	17,729	27,053	39,010
		2	7,404	13,545	23,932	40,358	64,317
Libya	44,089	0	54,925	66,388	75,603	83,939	91,218
		1	60,702	81,087	102,054	125,222	150,394
		2	67,086	99,040	137,758	186,809	247,958
Malawi	23,618	0	39,800	65,427	102,214	149,706	207,317
		1	43,985	79,912	137,974	223,334	341,809
		2	48,611	97,605	186,246	333,176	563,547
Mali	51,697	0	83,518	133,665	204,423	292,810	395,634
		1	92,302	163,258	275,942	436,821	652,291
		2	102,010	199,404	372,483	651,661	1,075,446
Mauritania	20,015	0	27,176	36,806	49,869	64,742	79,913
		1	30,034	44,955	67,316	96,584	131,755
		2	33,192	54,908	90,867	144,086	217,227
Mauritius	9,785	0	10,625	12,060	14,117	16,092	17,735
		1	11,743	14,730	19,056	24,006	29,240
		2	12,978	17,991	25,723	35,813	48,209
Morocco	136,949	0	163,665	196,566	230,548	260,808	285,860
		1	180,878	240,086	311,208	389,080	471,303
		2	199,901	293,241	420,086	580,439	777,047

Country	Urban Land Cover, 2000 (Hectares)	Annual Density Decline (%)	Urban Land Cover Projections (hectares)				
			2010	2020	2030	2040	2050
Namibia	12,721	0	17,127	22,542	28,826	35,194	41,546
		1	18,928	27,533	38,911	52,503	68,498
		2	20,919	33,629	52,525	78,325	112,934
Niger	20,083	0	29,366	46,937	81,439	138,385	219,781
		1	32,455	57,329	109,931	206,446	362,358
		2	35,868	70,021	148,391	307,981	597,427
Nigeria	464,192	0	689,925	960,546	1,262,215	1,584,014	1,905,194
		1	762,485	1,173,214	1,703,812	2,363,071	3,141,135
		2	842,677	1,432,967	2,299,905	3,525,288	5,178,855
Rwanda	15,818	0	28,077	43,617	66,068	97,284	136,454
		1	31,030	53,274	89,182	145,131	224,974
		2	34,294	65,069	120,384	216,510	370,919
Sao Tome & Principe	1,445	0	1,986	2,631	3,339	4,045	4,687
		1	2,195	3,213	4,508	6,035	7,727
		2	2,426	3,925	6,085	9,003	12,739
Senegal	33,922	0	46,122	62,546	84,029	108,764	134,058
		1	50,972	76,394	113,428	162,256	221,024
		2	56,333	93,308	153,111	242,058	364,408
Seychelles	799	0	935	1,083	1,238	1,371	1,465
		1	1,034	1,322	1,671	2,046	2,416
		2	1,142	1,615	2,256	3,052	3,983
Sierra Leone	14,207	0	21,017	29,363	41,616	57,157	74,731
		1	23,227	35,864	56,176	85,269	123,211
		2	25,670	43,805	75,830	127,206	203,140
Somalia	11,940	0	18,083	26,915	38,563	52,643	68,225
		1	19,985	32,874	52,055	78,534	112,484
		2	22,087	40,153	70,267	117,159	185,455
South Africa	506,638	0	596,440	669,589	744,816	810,855	867,722
		1	659,169	817,838	1,005,396	1,209,653	1,430,632
		2	728,494	998,910	1,357,143	1,804,591	2,358,713
Sudan	274,226	0	424,902	606,435	808,233	1,022,544	1,231,588
		1	469,590	740,701	1,091,000	1,525,456	2,030,545
		2	518,977	904,694	1,472,696	2,275,714	3,347,803
Tanzania	46,334	0	70,486	106,250	155,425	215,895	281,922
		1	77,899	129,774	209,801	322,078	464,811
		2	86,092	158,506	283,202	480,484	766,343
Togo	22,182	0	34,774	50,956	69,909	90,352	110,292
		1	38,431	62,238	94,367	134,789	181,840
		2	42,473	76,018	127,382	201,082	299,804
Uganda	71,967	0	109,182	179,721	305,275	493,629	751,611
		1	120,665	219,512	412,078	736,407	1,239,197
		2	133,356	268,113	556,247	1,098,590	2,043,090
Zambia	62,532	0	77,495	101,659	137,363	181,231	229,437
		1	85,645	124,167	185,421	270,365	378,277
		2	94,652	151,658	250,292	403,337	623,673
Zimbabwe	66,038	0	81,361	103,587	130,324	159,287	190,073
		1	89,918	126,522	175,919	237,629	313,377
		2	99,374	154,534	237,466	354,501	516,672

Source: S. Angel, J. Parent, D.L. Civco and A. M. Blei - The Atlas Of Urban Expansion (Lincoln Institute of Land Policy)

Annex 5: Reserves of Oil, Gas and Coal

Oil	at end 1991 Billion barrels	at end 2001 Billion barrels	2010 Billion barrels	at end 2011 Billion tonnes	Billion barrels	Share of Total	R/P ratio
Algeria	9.2	11.3	12.2	1.5	12.2	0.7%	19.3
Angola	1.4	6.5	13.5	1.8	13.5	0.8%	21.2
Chad	-	0.9	1.5	0.2	1.5	0.1%	36.1
Rep. of Congo (Brazzaville)	0.7	1.6	1.9	0.3	1.9	0.1%	18.0
Egypt	3.5	3.7	4.5	0.6	4.3	0.3%	16.0
Equatorial Guinea	0.3	1.1	1.7	0.2	1.7	0.1%	18.5
Gabon	0.9	2.4	3.7	0.5	3.7	0.2%	41.2
Libya	22.8	36.0	47.1	6.1	47.1	2.9%	*
Nigeria	20.0	31.5	37.2	5.0	37.2	2.3%	41.5
Sudan	0.3	0.7	6.7	0.9	6.7	0.4%	40.5
Tunisia	0.4	0.5	0.4	0.1	0.4	◆	15.0
Other Africa	0.8	0.6	2.3	0.3	2.2	0.1%	27.0
Total Africa	60.4	96.8	132.7	17.6	132.4	8.0%	41.2
Total World	1032.7	1267.4	1622.1	234.3	1652.6	1.0	54.2

Gas	at end 1991 Trillion cubic metres	at end 2001 Trillion cubic metres	at end 2010 Trillion cubic metres	Trillion cubic feet	at end 2011 Trillion cubic metres	Share of total	R/P Ratio
Algeria	3.6	4.5	4.5	159.1	4.5	2.2%	57.7
Egypt	0.4	1.6	2.2	77.3	2.2	1.1%	35.7
Libya	1.3	1.3	1.5	52.8	1.5	0.7%	*
Nigeria	3.4	4.6	5.1	180.5	5.1	2.5%	*
Other Africa	0.8	1.1	1.2	43.5	1.2	0.6%	63.4
Total Africa	9.5	13.1	14.5	513.2	14.5	7.0%	71.7
Total World	131.2	168.5	196.1	7360.9	208.4	1.0	63.6

Coal Million tonnes	Anthracite and bituminus	Sub-bituminous and lignite	Total	Share of Total	R/P ratio
South Africa	30156	-	30156	3.5%	118
Other Africa	860	174	1034	0.1%	*
Total World	404762	456176	860938	100.0%	112

Annex 6: African Resource-Rich Countries

Country	Type of Natural Resources	Gross National Income (GNI) Per Capita (in 2010 U.S. dollars)	Natural Resource Exports (in % of Total Exports, average)	Natural Resource Fiscal Revenue (in % of Total Revenue, average, 2006-10)	Human Development Index (2011)	Poverty Headcount at $2/day (in % of population) [94]	Paved Roads (in % of total roads)
Congo, Dem. Rep.	Minerals & Oil	180	94	30	0.29	80	2
Liberia	Gold/Diamond/Iron Ore	210	…	16	0.33	95	6
Niger	Uranium	360	…	…	0.30	76	21
Guinea	Mining Products	390	93	23	0.34	70	10
Mali	Gold	600	75	13	0.36	77	19
Chad	Oil	710	89	67	0.33	83	1
Mauritania	Iron Ore	1,000	24	22	0.45	44	27
Zambia	Copper	1,070	72	4	0.43	82	22
Nigeria	Oil	1,170	97	76	0.46	84	15
Cameroon	Oil	1,200	47	27	0.48	30	8
Sudan	Oil	1,300	97	55	0.41	…	36
Côte d'Ivoire	Oil/gas	1,650	…	…	0.40	46	8
Congo, Rep. of	Oil	2,240	90	82	0.49	74	7
Angola	Oil	3,960	95	78	0.49	70	10
Gabon	Oil	7,680	83	60	0.67	20	10
Equatorial Guinea	Oil	13,720	99	91	0.54	…	…
Sierra Leone	Diamonds	340	…	…	0.34	76	8
Madagascar	Oil/gas	430	…	…	0.48	90	12
Mozambique	Gas/bauxite, etc.	440	…	…	0.32	82	21
Central African Republic	Diamonds/gold	470	…	…	0.34	80	3
Uganda	Oil	500	…	…	0.45	65	23
Tanzania	Gold & precious stones	530	…	…	0.47	88	7
Togo	Phosphate	550	…	…	0.44	69	21
São Tomé and Príncipe	Oil	1,030	…	…	0.51	57	68
Ghana	Gold/oil	1,250	…	…	0.54	54	15
Algeria	Oil	4,390	98	73	0.70	…	73
Botswana	Diamonds	6,750	66	63	0.63	…	33
Libya	Oil	12,320	97	89	0.76	…	57

Source: IMF

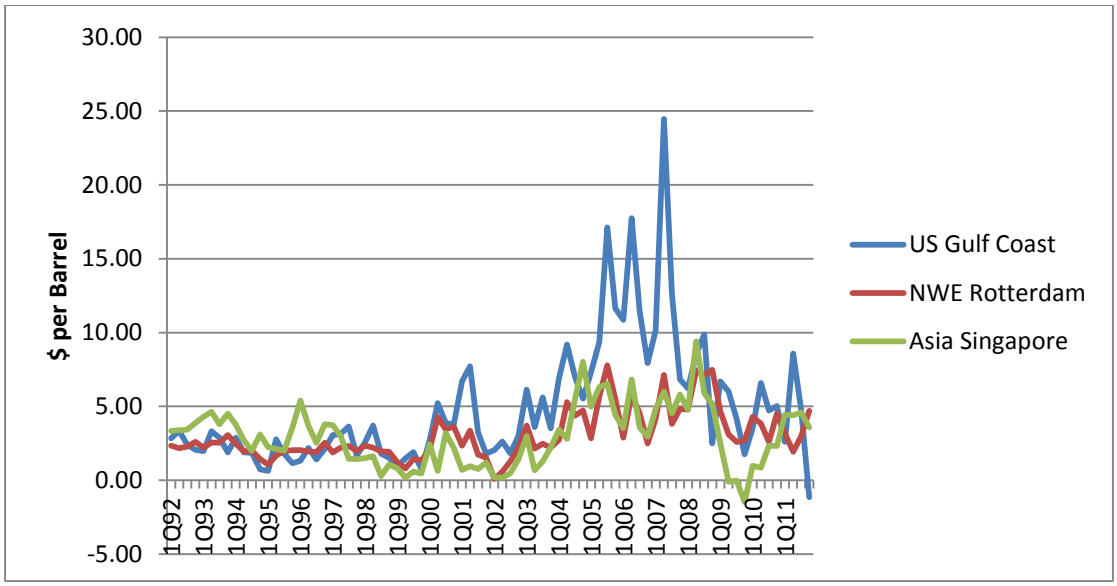
[1.] Refers to different years, depending on data availability

Annex 7: Geographical Advantage for Crude Oil Refining

In the case of **oil refining**, geographic advantage generally relates to being located close to one of the major spot petroleum product markets which set international prices for traded petroleum products (Rotterdam, Singapore, US Gulf Coast). Export prices for petroleum products in all other localities are determined by subtracting the product transport cost to the closest of these market hubs ("net-back"). Refineries located close to these hubs therefore command a premium because crude transport by sea costs considerably less than product transport, due to the large, relatively unsophisticated maritime vessels used to transport crude oil.

Refining margins in the best geographic locations range between $0/bbl and $5/bbl on average (under 5% of the value of the crude oil) (Figure A5.1). Except under exceptional circumstances this margin is considerably less than the transport differential between crude oil and refined products for distances like those between West Africa and Rotterdam, so refineries operating in other localities will run at a loss.

Figure A5.1: Estimated Quarterly Refining Margin: Optimally Located Refineries



Source: BP Statistical Review

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