

# 9

## Infrastructure, Regional Integration and Growth in Sub-Saharan Africa

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Achieving higher economic growth is one of the major challenges for sub-Saharan Africa. Its long-term growth has been slow relative to other developing countries, experiencing less than half of the average growth and about half of average investment efficiency levels obtained in other developing countries. More recently, about half of the countries in sub-Saharan Africa have been growing at a somewhat higher rate of 4 percent per year or more.<sup>1</sup> Yet, the policy response has not been sufficient to overcome nearly two decades of falling incomes per capita or to reverse other adverse legacies from the long period of economic decline – including deteriorated capacity, weakened institutions, and inadequate infrastructure.

In explaining Africa's slow long-term growth, one can make a distinction between endowment variables and policy variables. Although many of the studies on growth have emphasised the influence of government policy on risk and barriers to competition, governments also have an important role in providing public goods, supporting the provision of infrastructure, and addressing market failures. The under-provision of public goods and services can significantly increase costs to firms and make potential opportunities unprofitable. Inadequate infrastructure is one of the key impediments to faster economic growth.

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<sup>1</sup> Sub-Saharan African countries with growth rates above 5 percent during 2001–02 include Botswana, Burkina Faso, Côte d'Ivoire, Equatorial Guinea, Ethiopia, Ghana, Malawi, Mali, Mauritius, Mozambique, Namibia, Rwanda, Senegal, the Seychelles, Swaziland, Tanzania and Uganda.

In this chapter, we focus on infrastructure and regional integration as two mechanisms that can help foster stronger economic growth in Africa. During the past decade and a half, focus has been more on improving health and education. It has meant that in foreign aid in the 1990s, support to human development for Africa increased from 14 percent to 34 percent. This shift was accompanied by similar shifts in governments' own expenditures. At the same time, private investment in infrastructure did not materialise as initially expected. As a consequence, infrastructure has not received adequate attention in public policy and spending.

This chapter will reflect on the need to reverse this shift, while maintaining the gains made in human development. We will briefly discuss needs for infrastructure investment and finance, inspired by the new focus on Africa, recent promises of doubling of foreign aid, the work of the Commission for Africa, and so forth. We will also discuss regional cooperation, particularly from the perspective of improved infrastructure services and economic growth.

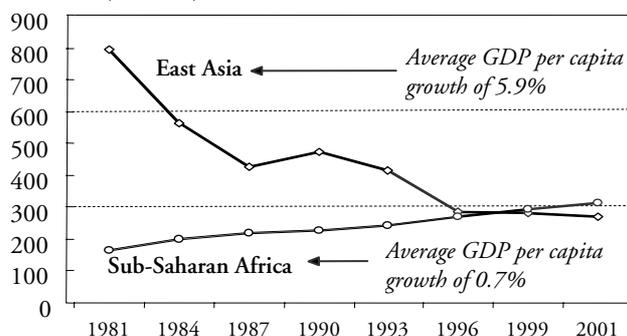
We will argue for a big push to offset or mitigate the disadvantages of Africa's "unfavourable" endowments mainly through improved infrastructure and regional integration. In the case of infrastructure, success will require breaking with the past by applying greater economic scrutiny of projects at the selection stage, integrity in procurement, efficiency in implementation, effective post-completion management to ensure maintenance and efficient operation and, continuing accountability to users.

In the remainder of this chapter we will: (i) analyse the close link between economic growth and poverty reduction; (ii) review the geographical constraints to growth in African countries and argue the case for a big push for improving infrastructure in Africa, as a necessity for scaling up growth and facilitating delivery of services to the poor; (iii) call attention to the large financing gaps for investment and, given the fact that private sector investment is currently a small proportion of total resource outlay, point to the need to scale up public investment; and (iv) emphasise the important role infrastructure plays in fostering successful regional integration in Africa through improved connectivity to enhance market integration, requiring effective regional coordination in infrastructural investments.

## **1 Poverty and the Challenges of Slow Growth in Africa**

The African growth performance of the 1980s and 1990s has been

**Figure 1 Number of People Living on Less Than \$1 Per Day**  
(millions)



Source: Chen and Ravallion, 2004; WDI.

disappointing, in spite of reforms. More than half of sub-Saharan African countries have pursued economic reforms to improve macro-economic management, liberalise markets and trade, and widen the space for private sector activity. There is evidence more recently on higher growth, but it is still insufficient to eliminate poverty.

Figure 1 covers the 1980s and 1990s and shows the dramatic drop in poverty – people living on less than 1 dollar a day – in East Asia, which has been growing very considerably at almost 6 percent per capita. Towards the end of 1990s, sub-Saharan Africa overtook East Asia as the home of the largest absolute number of poor people, reaching now 300 million.

Figure 1 captures the close link between economic growth and poverty reduction, when poverty is measured by household consumption.

On the challenges of slow African growth, we identify four areas: (1) the low capital accumulation, in absolute terms, or relative to GDP; (2) the high price of investment goods for African investors; (3) the low productivity of investment; and (4) geographical disadvantages. We will discuss each of them briefly.

### ***Low Capital Accumulation***

During the four decades since 1960, African countries have achieved significantly lower capital accumulation than other developing regions (see Table 1). The ratio of investment to GDP in sub-Saharan Africa (in 1985 international prices) averaged 9.5 percent of GDP compared to nearly 15.6 percent in other developing countries (Hoeffler, 1999).

**Table 1 Low Capital Accumulation, Comparative Investment Rates, Africa versus Other Regions, 1960-1992**

Region	Capital stock, growth rate	Investment rate		
		National prices (2)	International prices (3)	Ratio (2) to (3)
Africa	4.8	19	9.5	2
China	6.7	22.3	20.5	1.1
South Asia	5.2	18.9	11.3	1.7
Latin America	5.4	21.4	16.9	1.3
Industrial countries	4.5	20.8	24.5	0.8

*Source:* Columns (1)-(3): Collins and Bosworth (1996), Table 2.

Column (1) is derived from estimates of the capital stock, which are in turn derived by applying the perpetual inventory method to annual investment data from column (2).

African countries have also largely under-invested in infrastructure against the wisdom that countries which typically manage to invest more, do so particularly in infrastructure sectors (Esfahani and Ramirez, 2003).

### ***High Price of Investments***

The second point is that investments in African countries are more expensive. There are two explanatory facts. First, the average relative price of investment goods for sub-Saharan Africa was 70 percent higher than for OECD countries or East Asia (Sala-i-Martin, Doppelhofer, and Miller (2004)). Thus, a firm has to be much more profitable to afford those investment goods. Using this information, Artadi and Sala-i-Martin (2003) estimate that the average growth rate in African countries would have been 0.44 percentage points higher in every year, if the relative price of investment goods was the same as in OECD or East Asia.<sup>2</sup> The second explanatory fact for high prices of investment goods are higher transport costs for capital goods, which are largely imported. We will give some evidence in Section 2 on how much higher these costs are. The high costs of capital goods in Africa also comes out clearly in the country-specific enterprise surveys, carried out by the World Bank (2004).

<sup>2</sup> This cost differential is reflected in the wide divergence between the average share of investment in GDP for SSA in domestic and international prices. In domestic prices this ratio for the period 1960-1994 (weighted by average GDP at 1985 international prices) was 19% compared to only 9.5% at 1985 international prices (Table 1).

**Table 2 Low Returns on Investment, Productivity of Investment – Returns Comparisons**

	Africa	East Asia & Pacific	Europe & Central Asia	Latin America & Caribbean	Middle East & North Africa	South Asia
1960-69	0.326	0.301	0.263	0.259	0.54	0.314
1970-79	0.243	0.316	0.215	0.247	0.239	0.225
1980-89	0.151	0.146	0.109	0.085	0.106	0.235
1990-99	0.074	0.191	-0.229	0.143	0.214	0.22
2000-02	0.109	0.237	0.258	0.048	-0.022	0.175

*Notes:*

Investment productivity is defined as the amount of incremental output that is “derived” out of additional capital stock (investment) – here ratio of growth rate to investment rate.

*Source:* Author calculation based on data from GDF and WDI online database.

***Low Returns on Investment***

Table 2 presents some evidence on low returns on investment in Africa, as compared to other developing regions. The table presents a simplified ratio of growth rate to investment rate for more than four decades. If we look at Africa, it is notable that “investment productivity” for the early decade of the sixties was quite high and comparable to the level in other developing regions. However, this average sharply fell during the 1980s and 1990s, and lagged behind East and South Asia by a factor of three and, Latin America by a factor of two during the 1990s. But this is just the ratio of growth rate and investment rate to try to capture the issue that for similar levels of investment African economies have on average achieved only half the growth achieved in other developing regions. There are many possible reasons for this. One of them is poor quality of investment choices. Looking back, there have been too many white elephants. Another explanation is the low utilisation of installed capacity and lack of complementary human skills, which are needed to gainfully use more complex capital. An explanation that we are especially highlighting is under-investment in infrastructure, or complementary capital, necessary to private investment in productive capital.

Aschauer (1989) found that the stock of public infrastructure capital in the US had a significant effect on total factor productivity, a 10 percent increase in the public capital stock raising total factor

productivity by almost 4 percent.<sup>3</sup> Devarajan, Easterly and Pack (2003) point to another category of factors, namely, poor incentives created by foreign exchange market distortions and large budget deficits, which they conclude significantly explain why investment is not productive in Africa. The World Development Report (2004) *A Better Investment Climate for Everyone* shows that improvements in the investment climate can raise both investment and productivity. The Report shows that improving policy predictability alone can increase probability of new investment by over 30 percent. Furthermore, firms facing strong competitive pressure are 50 percent more likely to innovate than those that do not.

### ***Geographical Disadvantages***

Geographical disadvantages are the fourth set of factors underlying slow African growth. One disadvantage is the burden of disease due to tropical climate, which hampers growth through an adverse impact on life expectancy, human capital formation, and labour force participation. Ninety-two percent of sub-Saharan Africa lie within the tropics compared to 3 percent in the OECD countries and 60 percent in East Asia. Artadi and Sala-i-Martin (2003) estimate the forgone growth in Africa as a result of malaria prevalence to be a high 1.25 percent annually.

The geographical dislocation with respect to input and output markets is another geographical disadvantage. We have evidence from Limão and Venables (2001) on the median transport costs. For instance, for intra-regional trade in sub-Saharan Africa transport costs are \$7,600, while the comparable figure for Latin America and the Caribbean is \$4,600; in East Asia under \$4,000; and in the Middle East region just above \$2,000.

Furthermore, the geographic fragmentation of sub-Saharan Africa reduces the prospects of creating growth by exploiting economies of scale. Sub-Saharan Africa is divided into 48 small economies with a medium size of GDP of \$3 billion. A large number of these countries is landlocked, hosting 40 percent of sub-Saharan Africa's population. Transport costs in landlocked countries are 50 percent higher than in typical coastal economies, and their trade volume is 60 percent lower.

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<sup>3</sup> Using a Cobb-Douglas production function and annual data for the 1949-1985 period, Aschauer (1989) found a strong positive relationship between productivity and the ratio of the public to the private capital stock in the US.

**Table 3 Interregional Comparison of Geographical and Sovereign Fragmentation Indicators**

	Ratio of nr. of countries to area (*10 <sup>10</sup> )	Average population density (people per km <sup>2</sup> )	Average number of borders	% of population in landlocked countries	Average transport costs (\$)	Natural Resource (NR) rents dominance <sup>c</sup>		
						Proportion of NR economies <sup>d</sup>	% NR economies in each region <sup>e</sup>	frequency of NR economies <sup>f</sup>
SSA	2	77.7	4	40.2 <sup>a</sup>	7,600	64	32	6
EAP <sup>g</sup>	1.44	405.5	2.09	0.42	3,900 <sup>b</sup>	52	13	8
ECA <sup>g</sup>	1.17	74.6	4.93	23.06	–	36	11	3
LAC <sup>g</sup>	1.52	119.9	2.34	2.77	4,600	80	26	7
MNA <sup>g</sup>	1.6	136.3	3.94	0	2,100	78	15	5
SAR <sup>g</sup>	1.67	382.9	2.75	3.78	3,900 <sup>b</sup>	38	3	3

*Notes:*

<sup>a</sup> Congo, Dem. Rep., Sudan and Ethiopia are treated as “landlocked” countries.

<sup>b</sup> Data on transportation costs is available for East and South Asia region together (Limão and Venables, 2001).

<sup>c</sup> An economy which generates more than 10 percent of its GDP in primary commodities exports is classified as a “natural resource economy”.

<sup>d</sup> As a share of the total # of countries in each region.

<sup>e</sup> As a share of the total # of “Natural Resource” economies 93 (in the world).

<sup>f</sup> Average number of times a “Natural Resource” economy generates greater than 10% rents from exports of primary commodities over the period 1960-2002.

<sup>g</sup> East Africa and Pacific (EAP), Europe and Central Asia (ECA), Latin America and the Caribbean (LAC), Middle East and North Africa (MNA), South Asia Region (SAR).

Population density in sub-Saharan Africa is relatively low, and though urbanisation rates are rising, a large share of population resides in rural areas. All these factors result in a high transport intensity of economic activity.

There is also a tendency that each country prefers to have its own institutions and to do things within its national borders, which exacerbates the problems of geographic dislocation.

The situation is partly a result of colonial legacy and got worse post independence with the break up of federations (e.g. Northern Rhodesia Federation), customs unions, currency zones (only the CFA zone survived), as countries established their own trade regimes, central banks, and immigration administrations. This further multiplied policy frameworks; fragmented transport networks (e.g. disbanding of the

East African Railways); and led to increased trans-shipments, longer transit times, and more limited backhauls.

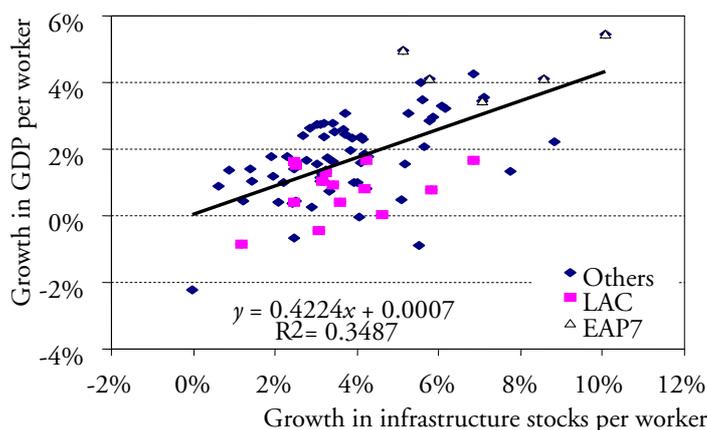
Table 3 provides evidence of geographical and sovereign fragmentation. Sub-Saharan Africa has a relatively high number of countries to area and a low average population density. The average number of borders is high, but it is also high in Eastern Europe and Central Asia. The proportion of population in landlocked countries is by far the highest in Africa, as are transport costs and natural resources rents. The proportion of natural-resource based economies is high in Africa, but it is also high in several other developing regions. While the figures in Table 3 indicate several geographic disadvantages, it does not mean that Africa is suffering from all of them. But in many areas, Africa is fragmented and hence is face with geographical disadvantages.

The consequences of fragmentation include higher costs of production and trade (within the region and with the rest of the world), and the now well-studied effects of ethnic fragmentation, accentuated by the sovereign fragmentation. Easterly and Levine (1997) highlight the role of polarised societies, captured by the measure of ethnic diversity, in encouraging the adoption of growth-retarding policies (that foster rent-seeking behaviour) and making it more difficult to build a consensus for delivering growth-promoting public goods, such as infrastructure and education.

## **2 Infrastructure and Growth in Africa**

Having broadly reviewed the challenges of growth in Africa, in this section we turn our focus to improved infrastructure as an important measure for offsetting or reducing the impacts of some of these factors. There are four broad strands of empirical studies which assess the contribution of infrastructure to growth and poverty reduction. The first focuses on aggregate impacts of infrastructure on long-term growth, using either reduced form cross-country regressions or structural models. The second assesses the impact of infrastructure or complementary capital on firm performance and investment in productive capital at the firm level. The third strand explores infrastructure and important platforms for growth, such as trade. The fourth strand assesses the impact of infrastructure on delivery of services, and hence achievement of the Millennium Development Goals. We will briefly discuss each of these strands below.

**Figure 2 Infrastructure Stocks and Growth of GDP**  
(1960-97 country averages, percent)

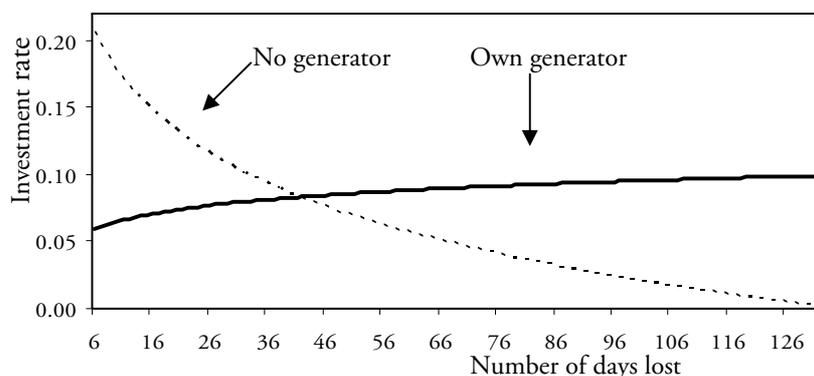


Source: Calderón and Servén (2003).

But before discussing them it is useful to note how infrastructure contributes to growth in Africa. Infrastructure is important for creating wealth, both within households and within enterprises. Infrastructure reduces costs faced by enterprises and enlarges their markets. Enterprises are more willing and able to invest in productive assets, when the complementary capital is in place and services are at low cost. For households, access to utility and infrastructure services dramatically improves living conditions and welfare.

### *Aggregate Impacts*

Easterly and Rebelo (1993) have found that public expenditure on transport and communications has a positive effect on growth. Studies prepared for the 1994 World Development Report estimate that on average a 1 percent increase in infrastructure stock is associated with a 1 percent increase in GDP. More recent studies (e.g. Esfahani and Ramirez, 2003) show that the contribution of infrastructure services to growth is substantial and in general exceeds the cost of provision of those services. For example, if the growth rate of telephones per capita rises from about the current 5 percent per year in Africa to 10 percent per year as in East Asia, the annual growth of GDP would rise by about 0.4 percentage points. In the power sector, an increase of per-capita

**Figure 3 Investment Rates of Ugandan Firms as a Function of Poor Electricity Service**

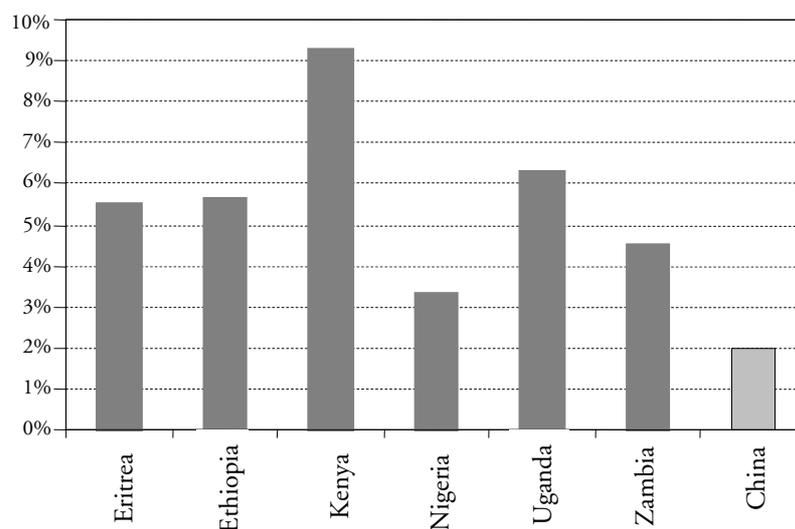
Source: Reinikka and Svensson, 2001

production growth rate from the current 2 percent in Africa to 6 percent as in East Asia, can raise annual GDP growth rate by another 0.5 percentage points.

The cross-country regression in Figure 2 shows a positive cross-country impact of growth in infrastructure stocks on growth of GDP per worker. Another recent study by Calderón and Servén (2004) finds that growth is positively affected by the stock of infrastructure assets, and that income inequality declines with higher infrastructure quantity and quality.

#### *Firm Level Impacts*

Moving from aggregate level to micro (firm) level, Figure 3 shows the impact of infrastructure on private investment using enterprise survey data. In this study, Reinikka and Svensson (2002) relate investment rates of Ugandan firms to the number of days without electricity. For firms without their own generator, investment rates are high, over 20 percent, when they do not have many lost days during the production year due to power cuts. When more operation days are lost due to power outages, as shown in figure 4, the investment rate for these firms declines very fast; when over 30 days are lost, the investments rate falls under 10 percent. But the level of productive investment stays low, below 10 percent, for firms that own a generator. This is because firms have to invest, on average, around 25 percent of the total investment funds in generators. Hence, productive investment will be reduced.

**Figure 4 Output Loss Due to Power Outages in Various Countries**  
(percentages)

Source: Wormser, 2005.

Figure 4 makes a similar point, showing average output losses due to power outages in six African countries and China (Wormser, 2004). Kenya has the biggest losses at close to 10 percent. That of course, severely hampers the competitiveness of firms.

#### *Impact via Trade*

For most African countries distance from their primary markets and high transport costs of their products inhibit their participation in the global economy. Transport costs represent the biggest form of such a disadvantage and they in turn, depend on the level of infrastructure. The burden of poor infrastructure on trade increases with geographic and sovereign fragmentation, and, as discussed before, sub-Saharan Africa is uncharacteristically highly fragmented.

Amjadi and Yeats (1995) demonstrate that relatively high transportation costs especially for processed products often place African exporters at a serious competitive disadvantage. Nominal freight rates on African exports are normally considerably higher than those on similar goods shipped from outside the region. In 1970, for example, net freight payments to foreign nationals absorbed 11 percent of

**Table 4 Impact of Infrastructure on Trade**

Infrastruc- ture: percentiles	Shipping data			CIF/FOB		Gravity	
	Transport costs \$	Sea km, equiv. change	Land km, equiv. change	CIF/FOB ratio	Km, equiv. change	Trade volume % change	Km, equiv. change
25 <sup>th</sup>	4638	-3989	-481	1.11	-2358	68%	-2005
Median	5980			1.28			
75 <sup>th</sup>	6604	3466	419	1.4	2016	-28%	1627

*Source:* Limão and Venables, 2001.

Africa's export earnings; that ratio had increased to 15 percent by 1990. And for landlocked African countries, the freight cost ratio exceeds 30 percent, as exports must transit neighbouring territories. In a similar vein, a more recent study by the African Development Bank (1999) on exports to the United States found that freight charges as a proportion of CIF value are on average approximately 20 percent higher for African exports than for comparative goods from other low-income countries.

Limão and Venables (2001) present some evidence that infrastructure has a large impact on trade costs and consequently on trade volumes (see Table 4). They find that the median landlocked country has only 30 percent of the trade volume of the median coastal economy. Halving transport costs would increase that trade volume by a factor of five. Improving the standard of infrastructure from that of the bottom quarter of countries to that of the median country would increase trade by 50 percent. So improving infrastructure in sub-Saharan Africa is especially important for increasing African trade.

Limão and Venables (2001) argue that landlocked countries can substantially reduce transport costs by improving the quality of their infrastructure and that of transit countries. They estimate the elasticity of trade flows with regard to transport costs to be high, at about -2.5. Infrastructure problems largely explain the relatively low levels of African trade.

### ***Impact via Service Delivery***

Infrastructure is not just about supporting growth and trade, it is equally

about poverty reduction through lowering the cost of access to quality social services. In this broader sense, the question is not about choosing between infrastructure and other social sectors, but on investing in infrastructure for better social outcomes. The 2005 World Development Report presents several examples of such outcomes. Building rural roads in Morocco increased primary school enrolment from 28 to 68 percent; access to clean water reduced the probability of child mortality by 55 percent, the presence of a paved road in the community more than doubled girls' school attendance (according to a study on Morocco). In Colombia, 72 percent of children with electricity at home read in the evening, compared to only 43 percent of those without. Calderón and Servén (2004) in a study of over 100 countries from 1960-2000, demonstrate that infrastructure reduces income inequality and benefits the poor more than proportionally.

Wormser (2004) provides another set of examples of such impacts from studies in sub-Saharan Africa. In Central African Republic, 10 percent increase in an index of Water and Sanitation reduced child and infant mortality by 4 to 5 percent and maternal mortality by 8 percent. In South Africa, households without electricity spend 14 to 16 percent of their incomes on energy compared to 3 to 5 percent for those with electricity in their homes. In Kenya, using wood fuels instead of charcoal, increase childhood respiratory infections between 21 percent and 44 percent. In Zambia, access to a passable road was associated with a decrease in the probability of child labour by 5.5 percent; with an increase in probability of school attendance by 7.4 percent and with higher educational achievement.

Much more evidence on the relationships between infrastructure and poverty reduction comes from Latin America. It would be worthwhile to study these relationships more closely, because infrastructure is an important public policy issue. There are a few studies showing that better infrastructure is essential in achieving the Millennium Development Goals, such as better education and health outcomes. In Colombia, of the children with electricity at home, 72 percent read in the evening, while without electricity this is only 43 percent, which is a large difference.

This kind of infrastructure services provision also has an impact on inequality. Calderón and Servén (2004) recently showed that in Peru, for instance, improving infrastructure to the level of Costa Rica, which is the Latin American leader, would increase the income share of the poorest quintile of the population from 5.6 to 7.5 percent.

**Table 5 Access to Infrastructure and Income Distribution**  
(in percentages)

	Electricity		Piped water		Improved water	
	Early 90s	Early 00s	Early 90s	Early 00s	Early 90s	Early 00s
Poor	0	0	0	0	35	39
Q2	1	4	0	0	41	53
Q3	4	13	0	2	51	57
Q4	22	32	13	10	70	70
Rich	68	75	53	43	88	85

Source: Estache (2005).

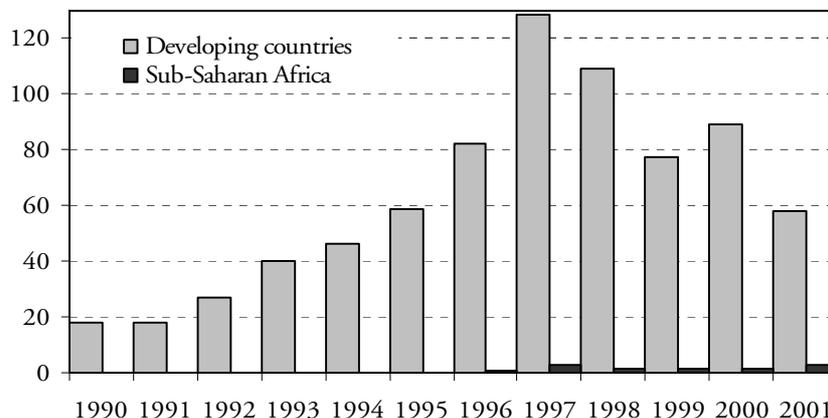
Table 5 presents some results from research on access to infrastructure and income distribution by Estache (2004a,b). It shows early-1990s and early-2000s access figures for electricity, pipe water, and improved water. For instance, in pipe water, where there had been some private participation, access actually declines over the decade and one can see that the lowest 40 percent do not benefit at all. They did not benefit before either, but they did not benefit from these reforms.

Access to electricity in Africa is very low (Table 5). Even in electricity, one can observe that wealthier people are better-off. In the lower income groups, the penetration of electricity is extremely low. Access to improved water – not piped water, but some other kind of improved water source – has however increased also for the poor. So, there has been some progress, some of the policies and interventions that have been included in the PRSPs and put into practice in the 1990s have delivered results to the poor.

### 3 Financing of Infrastructure

Anticipating increased assistance to Africa by the donor community, World Bank has estimated how much might be needed. Today total expenditure is about 2 to 2.5 percent of GDP on infrastructure, of which private investment is just 0.3 percent. The infrastructure investment needs are estimated at 5 percent of GDP per year and the operation and maintenance 4 percent, totalling 9 percent of GDP, which would mean a massive increase in infrastructure spending.

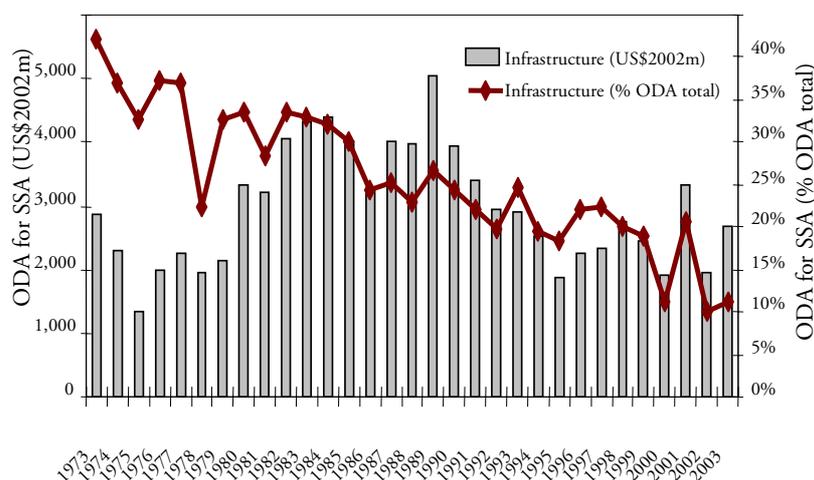
**Figure 5 Financing of Infrastructure – Declining Private Flows**  
(in billions of 2001 dollars)



Source: World Bank PPI Projects Database.

Figure 5 shows that there are declining private flows into infrastructure in developing countries. They peak in 1997, after which they are going down. In other words, the private capital investment did not materialise as expected. Foreign direct investments in Africa are not declining, but they are very small. Although the 1990s saw rapid expansion of private sector participation in the developing countries, sub-Saharan Africa has had limited success in attracting private sector investment into infrastructure outside of telecommunications. Between 1990 and 2002 private commitments for infrastructure in sub-Saharan Africa, totaled \$27.8 billion compared to \$804.9 billion for the developing world as a whole. Nearly two thirds of this amount (\$18.5 billion) was for telecommunications. At the same time, official development assistance (ODA) financing of infrastructure has declined since the early 1970s. Figure 6 provides the evidence.

Despite the changes since the 1990s the domestic public sector remains the most dominant source of financing spending on infrastructure in the developing world, accounting for 70 percent of current spending on infrastructure. The private sector and ODA account for 20-25 percent and 5-10 percent respectively, for the developing world as a whole (Briceno *et al.* (2004). The private sector is in fact a much smaller contributor for Africa. Therefore, the importance of the public sector cannot be overemphasised, particularly in financing road and railway services where so far private participation in Africa is minimal.

**Figure 6 Financing of Infrastructure – Drop in ODA financing**

Source: OECD IDS Online Database, 1973-2003

#### 4 Regional Cooperation for Improved Infrastructural Services and Growth

There is a close relationship between regional integration, growth, and infrastructure. It is possible to face Africa's geographical disadvantages and address the financing needs more effectively by focusing on regional solutions.

One area has to do with regional commons, that is, cooperation in the management of shared natural resources. There are initiatives like the Nile Basin or the Great Lakes, where countries come together to manage water sheds in international rivers to everybody's benefit.

There are public goods with trans-boundary implications, for instance, infectious diseases. One country cannot deal with malaria or air pollution on its own, because these travel across-borders. Hence joint action is needed.

Many policy issues can be best tackled through a regional integration approach, such as, converging macroeconomic policies, as we see in the Southern African Customs Union. Legal and regulatory frameworks are increasingly being harmonised, for instance in Eastern Africa. Scale

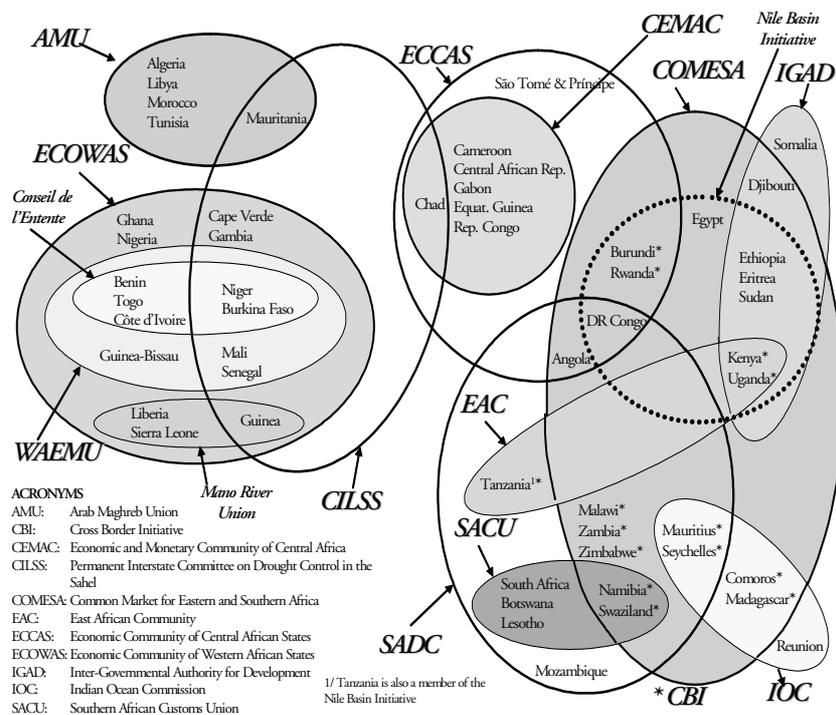
and competition are improving through integration of infrastructure, markets for goods, finance, labour, and energy.

The renewed regional initiatives are largely built on the principle of open regionalism, involve greater participation of the private sector, and accommodate variable geometry/multi-speed arrangements. There are other notable differences with past initiatives, including up-front resolution of the difficult issues related to sharing benefits from collaborative arrangements; increased attention to investment facilitation and connectivity; collaborative arrangements to deal with peace, security and sustainable development; and harmonisation or coordination of policy and institutional reforms.

Infrastructure is one of the key areas of collective regional interest that NEPAD and a number of sub-regional integration initiatives have recently raised. The objectives are partly to foster integration of African markets through improved connectivity and partly to facilitate cross-country investment within Africa. The high proportion of landlocked countries necessitate cross-border trade facilitation and coordination in trans-boundary infrastructure investment. In other cases, trans-boundary cooperation in the provision of infrastructure services could lead to substantial reduction of their cost among members and enhance reliability of services. A good example of potential here is the West Africa Power Market Development Project, where there is a large potential for significant reduction in power generation costs. Nigeria and Cote d'Ivoire could reduce their power generation costs from 8-10 US cents per kWh to only 3.5 and 4-4.5 cents per kWh. Two approaches are being pursued for regional infrastructure initiatives: regional or multi-country projects and coordination among individual country projects to maximise on cross-country synergetic effects of infrastructure projects. Examples for the former include the gas pipeline project between Mozambique and South Africa, the Nile Basin energy and conservation projects, and the planned West African Gas Pipeline project. Examples of investment coordination includes the Southern Africa power grid sharing and roads programme under the East African Community.

However, successful regional integration depends on countries fulfilling some pre-conditions, subscribing to keep principles and stick to them in practice. We argue that there is a need for rationalisation of regional integration arrangements in Africa and Figure 7 conveys that message. This maze of organisations may work against effective regional integration.

**Figure 7 Geographic Scope: Regional Integration Areas in Africa**



Pre-conditions for successful regional integration are to a large extent political: domestic peace and security in countries; political and civic commitment and mutual trust among countries. In the economic area, pre-conditions are a minimum amount of macroeconomic stability and financial management, price stability, realistic real exchanges rates, and sufficiently broad national reforms to open markets. Otherwise, regional integration may not fulfil the expectations.

Between the key principles for successful regional integration, openness is crucial. We argue that national and regional markets are too small, making openness to the rest of the world essential.

Further, the subsidiary principle is also important. Regional organisations should only do what national governments cannot do as well, where they have additionality, or subsidiarity. Private sector leadership is important. And integration should be applied with pragmatism and variable geometry, that is, countries join when they are ready.

## **5 Concluding Remarks**

Much of the effort toward creating the conditions for growth in Africa have emphasised the influence of government policy and behaviour on risk and barriers to competition. However, governments also have an important role in providing public goods, supporting the provision of infrastructure, and addressing market failures. Under-provision can significantly increase costs to firms and make potential opportunities unprofitable. The background papers for the Commission for Africa correctly identify three fundamental constraints to Africa's future prosperity: geography, market integration, and institutions. In this chapter, we have argued that geographical disadvantages and natural resource dependence are not a predicament, as their effects can be offset or ameliorated. Botswana, the fastest growing economy in Africa (and among the fastest globally) for the past four decades, presents a striking example. It is landlocked, natural resource dependent and has not had a history of a settler colony. Arguably, the strength of its state capacity, its being part of the Southern Africa's relatively effective infrastructure system, customs union and monetary area (for a long period) helped offset the negative effects of remoteness and geographic and policy regime fragmentation. The wealthy interior of South Africa likewise is a story of fast growth in spite of remoteness and high natural resource dependence.

These two countries tend to be important exceptions from the typical African country that has largely under-provided quality infrastructure services leading to higher transactions costs for business and service delivery. During the 1990s, African governments and development partners sharply reduced the share of resources allocated to infrastructure in favour of scaling up spending in social sectors. Several reasons were behind this shift. One was the spectre of the "white elephants" in public infrastructure projects, which suffered particularly from inadequate provision for recurrent costs, unrealistic pricing, and a wide range of regulatory forbearance. Secondly, the 1990s and early-2000s saw an expansion of divestiture programmes and increased participation of the private sector in infrastructure, particularly in telecoms, water and power raising hopes that the private sector would fill the investment gaps. It has become clear that due to high risks and substantial externalities associated with investment in infrastructure, the balance between public and private sector involvement needed to be revisited.

Apart from good governance, the need for which is getting increasing attention in the region, the other big push area for reducing transactions costs for growth and delivery of services is infrastructure. The estimated resources needed to meet the growth and consumption requirements of infrastructure service at 9 percent of GDP are large. But it is possible to finance those gaps more effectively by increased regional integration and ensuring that in-country investments in infrastructure will lead to sustainable and efficient provision of services.

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