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Infrastructure Reform and Poverty Reduction in Africa

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Abstract

Despite the perceived role of efficient infrastructure as critical element for economic growth, poverty reduction and the attainment of the millennium development goals, there is clear evidence that the provision of infrastructure in Africa has been much below standard in terms of quantity and quality. Over the past decade, there has been a change in the perception of the roles of the public and private sectors in infrastructure development. This study evaluates the linkages between infrastructure reform and poverty reduction in Africa. The findings indicate that the results of a decade of regulatory reform, implementation of the privatization and liberalization agenda, combined with the influx of private investment in infrastructure have decidedly been mixed. In spite of modest achievements, especially in telecommunications, there has been a gap between popular perceptions and reality on ground. Africa's atypical experience and unique socioeconomic characteristics are such that the policy preconditions that are indispensable for effective liberalization and privatization are rarely met. Overall, infrastructure privatization has proceeded without adequate consideration being given to the needs of the poor. Even in telecommunications where privatization has improved national access to services through network expansion, weak regulation has had a negative impact on the poor through poor service quality and service cutbacks. There is now a significant base of experience around the world from which lessons can be learned. Infrastructure privatization should be viewed as a means to an end, and not an end in itself. The goal should be a more efficient sector delivering quality service while fulfilling its social responsibilities. Privatization is only an effective means towards the achievement of this goal if it is done in the context of an appropriate market and regulatory framework.

Keywords: Infrastructure, Privatization, Millennium Development Goals, Poverty and Africa

JEL Classification: L5, L9 and N77

1. Introduction¹

At the United Nations (UN) Millennium Summit of September 2000, 189 nations adopted the 'Millennium Declaration,' out of which grew a set of eight goals, eighteen numerical targets and forty-eight quantifiable indicators to be achieved over the 25-year period from 1990-2015. The Millennium Development Goals (MDGs) commit the international community to an expanded vision of poverty reduction and pro-poor growth and vigorously place human development at the centre of social and economic progress in all countries. They seek to reduce the number of poor in the world and specifically target the worst aspects of poverty.

As the world strives towards achieving the millennium development targets, Africa faces enormous challenges. It is glaring that Africa will miss the MDGs by a large extent. According to the latest projections by the OECD/African Development Bank Economic Outlook for Africa 2003/04, only six countries² are on track in achieving the first goal of halving the proportion of people living below \$1 dollar per day by 2015. Meanwhile, half of the continent is slipping back or far behind with respect to the target of halving hunger, while the scenario is even worse for the achievement of education and health targets. Poverty rates are falling everywhere except in Africa. New estimates of poverty rates based on reexamination of household survey data indicates that poverty in Sub-Saharan Africa rose from 41 percent in 1981 to 46 percent in 2001, and an additional 140 million people were living in extreme poverty (World Bank, 2004a). Due to the continent's disproportionate burden of poverty and many other impediments to development, achieving the Millennium Development Goals will hinge on making substantial and sustained advances in infrastructure. Unless the world's poor gain greater access to transport, electricity, water and telecommunications, the likelihood of achieving the internationally agreed millennium development goal of cutting extreme poverty by half by 2015 will remain in serious doubt.

Infrastructure industries have traditionally been monopolies, owned and operated by the public sector. For much of the 20th century, infrastructure services in most countries were provided by state-owned utilities that were vertically integrated. Although this model initially produced some desirable results, it ultimately led to serious problems for the public interest, especially in developing countries. These problems included underinvestment, in large part caused by under-pricing; low productivity; poor service quality; long queues and large portions of the population without access to basic services;

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² These countries are Algeria, Egypt, Libya, Morocco, Tunisia, and Mauritius. For details, see Growth trends and outlook for Africa: Time to unleash Africa's huge energy potential against poverty, OECD Development Centre/African Development Bank 2003/2004 African Economic Outlook, <http://www.oecd.org/dataoecd/43/43/32285652.PDF>

lack of transparency; and damaging political interference in the operations of these infrastructure entities (World Bank, 2004b).

Since the late 1980s, there has been a profound reassessment of public policy towards the infrastructure sectors. Views have changed dramatically on how network utilities should be owned, organized, and regulated in both the advanced industrial economies and also the developing and transition countries. There has been a shift towards both private management (private sector participation) and private ownership (privatization) of these industries as well as the competitive provision of services within parts or all of these sectors (liberalization) as a result of the generally poor performance of state-owned monopolies, the rapid globalization of the world economies, which has brought into sharp focus the economic costs of inadequate infrastructure, prompting a growing number of developing countries to seek new initiatives in promoting competition, private entry and foreign interest in the provision of infrastructure.

In the face of extraordinarily weak performance of infrastructure and the widespread recognition of the critical role of infrastructure in sustained economic growth and international competitiveness, the debt and fiscal crises that emerged in the early 1980s in many developing and transition countries and the subsequent endorsement and promotion of infrastructure privatization by international development agencies, many countries in Africa are implementing far-reaching infrastructure reforms including restructuring, privatization and establishing new approaches to regulation over the past decade. These reforms are being implemented to promote private investment, provide strong incentives for operating efficiency, restore the financial viability of virtually bankrupt state-owned network utilities, especially through the promotion of more rational pricing policies, that they would improve service quality and eliminate service backlogs, introduce greater transparency in the operations of these industries, and also insulate the operating infrastructure entities from damaging political interference.

Although private sector participation in the provision of infrastructure services has become the new orthodoxy, many remain concerned about its social implications. There are growing concerns about how infrastructure privatization and market liberalization have affected low-income households in developing and transition economies (Estache, Foster, and Wodon 2002). It is often argued that privatization leads to tariff hikes that make services unaffordable for the poor and that profit-oriented multinationals are unwilling to provide services to urban slums and remote villages. There is undoubtedly some legitimacy to these concerns. Even if privatization and competition in infrastructure increase efficiency and improve average consumer coverage, such reforms could hurt the poor in at least two ways. First, new market structures, including competition, make cross subsidies difficult to maintain and raise the possibility that private firms will “cream skim”—serve the most profitable customers and ignore the unprofitable ones (i.e., poor and rural consumers). Second, reforms often necessitate “tariff rebalancing”—increased prices in order to cover costs. Even if such rebalancing is necessary to ensure viable service over time, higher prices could make service increasingly unaffordable for the poor (Clarke, George and Wallsten. 2003).

Linking together the micro and macro aspects of infrastructure reform is also crucial for building the right infrastructure in Africa. This study evaluates the linkages between infrastructure reform and poverty reduction in Africa. Specifically, it explores conceptually and empirically the micro and macro linkages between infrastructure reform and poverty in Africa and evaluates the compatibility of the current reform process with poverty reduction.

The findings indicate that the results of a decade of regulatory reform, implementation of the privatization and liberalization agenda, combined with the influx of private investment in infrastructure have decidedly been mixed. Although private sector participation in infrastructure services has become the new orthodoxy, these reforms have not lived up to their billing in Africa. In spite of modest achievements especially in telecommunications, there has been a gap between popular perceptions and reality on ground in infrastructure reform and privatization in Africa. This is not a surprise given Africa's atypical experience and unique socioeconomic characteristics where the policy preconditions that are indispensable for effective liberalization and privatization are rarely met (Ariyo and Jerome, 1999).

The reform process has been deeply flawed. It frequently lacked procedural transparency and benefited well-organized and powerful interest groups. In some cases, it resulted in too rapid price increases that adversely affected the poor segments of the population. Overall, infrastructure privatization has proceeded without adequate consideration being given to the needs of the poor. Even in telecommunications where privatization has improved national access to services through network expansion, weak regulation has had a negative impact on the poor through poor service quality, service cutbacks etc.

In spite of the fact that there is no universal reform model, there is now a significant base of experience around the world from which we can derive lessons that need to be learned. Infrastructure privatization should be viewed as a means to an end, and not an end in itself. The goal should be a more efficient sector delivering quality service while fulfilling its social responsibilities. Privatization is only an effective means towards the achievement of this goal if it is done in the context of an appropriate market and regulatory/legal framework. The track record of infrastructure privatization in the absence of those frameworks is dismal.

The paper is structured in 7 sections. Apart from this introductory section, Section 2 presents the conceptual framework while section 3 appraises the micro and macroeconomic linkages between reform and poverty reduction. The trend in private sector participation in infrastructure is presented in Section 4, Section 5 appraises sectoral performance, Section 6 presents the empirical evidence on the impact of reform on the poor and section 7 concludes.

2. Conceptual Framework

2.1 Concept of Infrastructure

Until recently, infrastructure as a concept has largely been absent from the history of economic thought. Curiously, for two centuries, infrastructure as an analytic concept has been practically absent from economic discourse (Prud'homme, 2004). It however exploded during the 1990s³, with a vast body of literature estimating its contribution to economic growth.

There is no ironclad definition of infrastructure. Broadly defined, it refers to all basic inputs into and requirements for the proper functioning of the economy. In its widest sense, it includes all public services from law and order through education and public health to transportation, communication, power and water supply as well as such agricultural overhead capital as irrigation and drainage systems (Hirschman, 1958: 83). It now embraces what has been tagged "soft infrastructure", such as information and communication technology (ICT) and governance.

Although they have a number of common features that distinguish them from ordinary private capital, and provide a justification for the use of a specific concept, infrastructures are very heterogeneous. They are usually grouped into two namely, economic and social infrastructure. Economic infrastructure is part of an economy's capital stock that produces services to facilitate economic production or serve as inputs to production (e.g. electricity, roads, and ports) or are consumed by households (e.g. water, sanitation and electricity). Following World Bank (1994), economic infrastructure can further be subdivided into three categories: utilities (electricity, gas and water, telecommunications, sanitation, sewerage and solid waste disposal), public works (water catchments in dams, irrigation and roads) and other transport sub-sectors (railways, roads, seaports, airports and urban transport systems). In national accounts statistics, these are found in two sub-headings of the gross domestic product (GDP), electricity, gas and water are located in the secondary sector; and transport, storage and communication in the tertiary sector.

Social infrastructure encompasses services such as health, education and recreation and has both a direct and indirect impact on the quality of life. Directly, it supports production and trade; indirectly, it streamlines activities and outcomes such as recreation, education, health and safety. The indirect benefit of improved primary health care, for example, is improved productivity, which in turn leads to higher real incomes. Social infrastructure also facilitates investment in human capital by using some of the economy's physical capital stock to raise the productivity of the workforce. The impact on growth is similar to an increase in the supply of capital – a higher capital to labour ratio which enables a given number of workers to produce more per capita. It also enhances the economic, political and social empowerment of the populace, with the attendant positive effects on poverty alleviation and efficient use of national resources.

³ A recent search on google produced 17.4 million returns on infrastructure

2.2 The Concept of Poverty and the poor

Poverty is an elusive concept, especially from the perspectives of researchers and policy makers in developing countries. The “best” definition of poverty remains a matter of considerable academic argument. Perhaps the only view on which there is consensus is that people who live in poverty must be in a state of deprivation, and in general their standard of living falls below minimum acceptable standard.

There is now a far more detailed and better understanding of the meaning and dimensions of poverty. According to the World Bank (2000/01), “poverty is pronounced deprivation in well-being”, where well-being can be measured by an individual’s possession of income, health, nutrition, education, assets, housing, and certain rights in a society, such as freedom of speech. Poverty is hunger, lack of shelter, being sick and not being able to see a doctor, not being able to go to school and not knowing how to read, not having job, fear for the future, living one day at a time and losing a child to illness brought about by unclean water. Poverty is powerlessness, vulnerability, and lack of opportunities representation and freedom.

Many factors converge to make poverty an interlocking multi- dimensional phenomenon, and experiences of poverty are conceptually specific to geographical areas and groups. These come out clearly in the criteria used to differentiate between categories of rich, average and poor. The 2000/2001 World Development Report (World Bank, 2001a) identifies three broad dimensions of poverty relating to lack of income, insecurity and lack of political voice.

For instance, in both rural and urban Ghana, men associate poverty with a lack of material assets, whereas for women, poverty is defined in terms of food insecurity. In the same vein, poor people in Ghana not only distinguish between the rich and the poor, but also between different categories of poor, based on assets and degree of dependency. The rich are described as those who “feed their children properly; they live in good houses, which they will pass on to their dependents; and they are able to assist others”. At the other extreme are the chronically hungry, variously described as the extremely poor, the perennially needy, and the pathetic (Kunfaa and Dogbe, 2002).

In the World Bank Consultation with the poor, the Nigerian case study (Okumadewa, et. al, 2002), poverty is associated with lack of dignity, status, security and hope. In addition to material deprivation characterized by poor insecure housing, food insecurity and limited access to utilities and services, the poor were described as wretched and lacking any opportunity to change their situation or provide their children with greater opportunity. The powerlessness of the poor was further manifested in a lack of access to justice when wronged and an exclusion from the benefits of local political patronage and corruption.

The very poor could be subdivided into two broad groups. The first is “God’s poor”, a group that includes factors for which there is no obvious remedy, such as disability, age, widowhood, and childlessness. The second group is the “resourceless poor”, including immigrant widowers and other landless poor. In between the two extremes of rich and

very poor are the “deprived but hard- working, the not-so-poor, or the hand-to- mouth category”.

2.3 How Infrastructure Can Benefit Poor People

Recent body of research confirms the importance of infrastructure to the promotion of sustainable development. The World Bank landmark study on infrastructure (World Development Report, 1994) highlighted the critical role of infrastructure in the development process and laid out an agenda for public-private partnerships in the provision of utility. The evidence in the World Bank report on the vital role of infrastructure in growth has been reinforced by subsequent research, for example on Africa’s economic performance. Not only does development of infrastructure services contribute to growth, but growth also contributes to infrastructure development, in a virtuous circle. Moreover, investments in human capital and in infrastructure interact, each increasing the returns to the other.

Ariyo and Jerome (2004) identified the various channels through which investment in infrastructure can contribute to sustainable growth. These are:

- Reducing transaction costs and facilitating trade flows within and across borders;
- Enabling economic actors – individuals, firms, governments – to respond to new types of demand in different places;
- Lowering the costs of inputs for entrepreneurs, or making existing businesses more profitable;
- Creating employment, including in public works (both as social protection and as a counter-cyclical policy in times of recession);
- Enhancing human capital, for example by improving access to schools and health centres; and
- Improving environmental conditions, which link to improved livelihoods, better health and reduced vulnerability of the poor.

In view of the size of their operations and the importance of the services they provide to all other sectors, infrastructure should be leading agent in developing countries’ efforts to increase the productivity of the poor. Infrastructure can also contribute to poverty reduction through the opportunities it creates for increasing the employment intensity of economic growth. The importance of employment-generating activities, especially for women was noted in a number of Poverty Reduction Strategy Papers (PRSP) that highlights these opportunities. Many are in construction – especially with appropriate standards and choice of surface – but even more employment should result from service provision and maintenance. For example, the Bangladesh Rural Roads project, which provided significant employment for women in construction and maintenance, also provided employment for small enterprises such as rickshaws and cycle repair workshops.

Infrastructure can also provide forms of social protection that move people beyond safety nets, especially when employment concerns are mainstreamed into investment policy. Even where the overall policy environment is poor, such initiatives can reduce poverty. With careful attention to trade-offs, the physical capital accessible to poor people can be enhanced at the same time as employment is provided. Preference for sectors and technologies that are labour-intensive is crucial where it is technically feasible and economically cost-effective. They have been most often used in roads (usually involving private contractors), but are also relevant to irrigation, drainage and sanitation, erosion control and water supply. These are sectors that can directly benefit the poor.

Many participatory poverty assessments reveal how much the poor value infrastructure services which provide direct benefits to them. In a summary of the views and opinions expressed by the poor themselves in a recent worldwide survey, Narayan (2002) notes that “the lack of basic infrastructure – particularly roads, transportation and water – is seen as a defining characteristic of poverty.” The effects on women are often especially severe.

Infrastructure is a key determinant of convergence and of reduction in disparity across regions. Detailed evidence exists for Argentina and Brazil, where improved access to sanitation and roads is a significant determinant of convergence for the poorest regions (Estache and Fay 1996). There is also direct evidence on the importance of adequate infrastructure services in providing an enabling environment for business. For example, the World Bank (1994) reports: ‘a distributor of industrial spare parts and machinery in Nairobi saw his business expand 35% after additional telephone lines were installed. This allowed him to hire six more employees and add three vehicles to his fleet’.

While the evidence is broadly positive, spending on infrastructure has not always contributed to pro-poor growth. Actual benefits have often been less than anticipated, especially because of inadequate attention to governance and institutional frameworks. ‘White elephant’ infrastructure projects are far from unknown. Poor governance and corruption often hinder a demand-led approach, distort public investment choices, divert benefits away from the poor and encourage the neglect of maintenance.

Too often, indeed, there have been negative rather than positive consequences for poor people, including environmental damage to which the poor are most vulnerable. A variety of barriers have prevented poor people from gaining access to the economic opportunities created by infrastructure. There have also been human rights abuses in the displacement of people from shelter or livelihood opportunities, and measures to mitigate these abuses have often proved too costly to implement.

3. Infrastructure Reform and the poor

There are several channels through which infrastructure reform especially privatization affects the poor. Following contemporary literature, we distinguish between macroeconomic and microeconomic linkages, because they focus on different types of policy issues that require different types of policy instruments for addressing them.

3.1 Macroeconomic Linkages

The macroeconomic linkages between reform and poverty are mostly indirect. From the perspective of the poor, the main macroeconomic impacts of infrastructure privatization are assessed with respect to economic growth, employment, and the composition of public expenditures. We elaborate briefly on each impact focus as follows:

Economic Growth

Since infrastructure services provide an important input into other commercial activities, the removal of infrastructure bottlenecks contributes to growth in several sectors of the economy. Two main channels contribute to the removal of bottlenecks. First, private sector participation, particularly when complemented by market liberalization and/or well-designed and properly managed incentives and regulatory framework, can raise the size and the productivity of infrastructure and hence the overall level of productivity in the economy. Second, access to private capital markets permits the financing of investments aimed at raising the quantity and quality of infrastructure services, as well as expanding overall capacity and increasing coverage levels.

On the empirical front, considerable research effort has been devoted in the last decade or so, to estimating the relationship between infrastructure and economic growth, in particular the effects on productivity on the one hand, and establishing the direction of causality. Admittedly, most of these studies are based on the experience of developed economies. The evidence comes from two types of studies. The first focuses on the absolute impact of infrastructure on macroeconomic (production-related) indicators. Aschauer (1989) opened the debate by arguing that the elasticity of national GDP to infrastructure is high in the United States, roughly 0.4 for total public capital and 0.24 for core infrastructure, Munnell (1990) and Nadiri and Mamuneas (1994) confirm these results at the national level. However many researches including GarciaMila and Mcguire (1992) and Morrison and Schwartz (1996), find this elasticity to be lower, and sometimes insignificant at the state or local level (Eberts 1990, Hulten and Schwab 1991), Munnell (1990), for instance, found the elasticity to be around 0.15 at the U.S. metropolitan level⁴.

The result has also been challenged on econometric grounds and the debate has not been settled (see de la Fuente 2000). More rigorous studies provide evidence of the existence of a linkage between infrastructure and growth. Baffes and Shah (1998) conclude that the elasticity of output to infrastructure is around 0.14 to 0.16 in Bolivia, Colombia, Mexico and Venezuela, Ferreira (1996) reports elasticity that varies between 0.34 and 1.122, depending on the discount rate used. Cross sectional studies using capital stock in roads,

⁴ See Gramlich (1994) and Jerome (1999) for a survey.

railways and telephones as proxies for infrastructure stock and others using public investment in transport and communications also show that infrastructure variables are positively and statistically correlated with growth in developing countries (Canning, 1998). This study finds strong correlation between lagged values of the independent variables and GDP per capita, though econometric problems persist, as the lag structure may not fully account for simultaneity.

Employment

A second and direct effect of infrastructure privatization might be the reduction in employment especially in the short-term. Traditionally, public sector providers of infrastructure services are characterized by substantial level of over staffing. Indeed, state enterprises have often been consciously used as employment schemes, or even as informal social security systems. One of the immediate consequences of privatization is the shedding of labour burden with a view to raising the efficiency and profitability of utility service providers.

Table 3.1. Macroeconomic Linkages between Infrastructure Reform and Poverty.

| <i>Category</i> | <i>Benefits</i> | <i>Potential Loss</i> | <i>Risks/Ameliorating factors</i> |
|---------------------|--|--|--|
| Economic Growth | More private participation in provision of infrastructure may help growth, and thereby poverty reduction, by increasing productivity, and easing access. | Relative price changes for infrastructure services can influence consumption baskets especially where no safety nets are in place to address the specific needs of the poor. | If economic growth benefits mostly the non-poor, poverty may not be reduced and inequality may increase, with a possible reduction in social welfare. Privatization of Infrastructure can contribute broadly to growth in the economy. |
| Employment | If infrastructure reform generates economic growth, there should ultimately be some employment creation, but it may take time. | Reforms may generate layoffs and reductions in wages, at least during the transition period. | The negative impact of layoffs on poverty can be mitigated through severance packages and other policies. |
| Public expenditures | Revenues from reforms (for example, privatization) and the phasing out of subsidies generate fiscal space for other public programs that may be better targeted and more pro-poor. | The poor may be hurt by the reduction or removal of public subsidies for infrastructure services (there may be cuts in the subsidies for both connections and consumption) | “Privatization revenue earmarking and better targeting may ease financing of the needs of the real poor. |

Source:- Adapted from Estache, Gomez-Lobo and Leipzinger (2001)

The extent to which the employment effects of private sector participation affect the poor depends on two factors. The first is the initial progressivity or regressivity in the distribution of employment in public enterprises, that is, whether the poor have access to public sector employment in the infrastructure sector. The second critical issue is the compensation granted to workers laid off as well as retraining programmes provided for those affected by privatization, and these have varied considerably across countries and sectors.

In the longer term, to the extent that infrastructure sector reform contributes to economic growth, and thereby to new jobs, the initial layoffs in the public utilities may be compensated for by job creation in other sectors. This has been confirmed by the simulation carried out on Argentina as reported in studies by Benitez, Chisari, and Estache (2000); Chisari, Estache, and Romero (1999).

**Table 3.2: Macroeconomic Impact of Infrastructure Privatization
Comparative Evidence**

| Source | Countries | Sectors | Policy Tool or Reform | Method | Results |
|---|---|---|---|---|--|
| Galal, et. al. (1994) | Chile, Malaysia, Mexico, United Kingdom | Electricity, Telecommunications, Transport | Privatisation | Construction of counterfactual based on pre-reform time series data. Projection of both actual and counterfactual scenarios into the future with the difference between the two providing the measure of welfare change. Impacts on owners, consumers, workers, and competitors explicitly modeled. | Substantial net welfare gains found in 11 or 12 case studies. Owners and workers generally gained from privatization. Mixed results for consumers who gained in some cases and lost in others. |
| Estache and Fay (1995) | Argentina, Brazil | Electricity, roads, sanitation | Regional investment Gaps | Regional relative and absolute convergence model ranking relative effect of various public investment programs on regional growth. | Lack of infrastructure investment revealed as main impediment to growth in several provinces in Argentina and states in Brazil. |
| Ferreira and Malliagros (1998) | Brazil | Infrastructure | Changes in public investment programs and productivity. | Econometric estimates of the linkages between infrastructure and GDP and total factor productivity. | Long-run output elasticity is 0.55-0.61, with the strongest effect coming from energy and transport; strong effect on total factor productivity as well. |
| Baffes and Shah (1998) | Bolivia, Columbia, Mexico, Venezuela | Infrastructure | Public Investment needs. | Econometric analysis of elasticity of output to access to infrastructure. | Elasticity of output to infrastructure varies from 0.14 to 0.16. |
| Chisare, Estache, and Romero (1999) Navajas (2000) | Argentina | Electricity, gas telecommunications, water. | Privatisation, regulation. | General equilibrium model of the economy. Use of two alternative scenarios permits separate identification of the impact of privatization versus regulation. | Gains are equivalent to 2.25 per cent of GDP, of which three-fourths are attributable to privatization and one-fourth to effective regulation. All income groups' benefit, but the poor benefit more. The distribution of income improves. Macroeconomic indicators, including employment, also improve. |
| Alexander and Estache (2000) | Latin America | Electricity, gas, telecommunications, transport, water. | Restructuring, privatization, regulation. | Review of existing studies and compilation of case study material. | Evidence from a variety of sources indicates that reform of infrastructure, when properly conducted, has a discernible positive impact on macroeconomic performance. |
| Benitez, Chisarie, and Estache (2000) | Argentina | Electricity, gas, telecommunications, water. | Privatisation, fiscal reform regulation. | General equilibrium model of the economy to assess the fiscal consequences of utilities' privatization and regulation. | Argentina gains more from net present value of subsidy cuts and that largest share of increase in unemployment results from series of credit shocks rather than to utilities reform. |

The studies use a general equilibrium model to calculate both sector-specific and the wider macroeconomic repercussions of private sector participation in the production and/or delivery of utility services. They not only provide a breakdown of the sector-specific gains across income quintiles but also examined the effect of reform on the overall distribution of income in the economy.

Composition of Public Expenditures

Privatization can lead to a significant improvement in public finances. This is attainable through the elimination of unproductive subsidies and avoidable transfers to unprofitable SOEs, as well as the generation of privatization revenues. If these public funds are reallocated to programs whose incidence is more progressive than the original utility-related investments and consumption subsidies, this change can benefit the poor. The situation will be greatly improved if revenue generated from privatization could be used to effectively expand national production possibility frontiers.

No guarantee exists, however, that public revenues will be reallocated in a pattern that is favourable to the poor. While privatization may tend to increase in total welfare, the gains are not always shared with the poor. The potential benefits and costs (losses) of utility sector privatization are summarized on Table 3.1.

Several empirical studies on macroeconomic impact of privatization have also been reported in the literature. The findings of the various studies are summarized on Table 3.2.

3.2 Microeconomic Linkages

The microeconomic linkages of infrastructure reform can be organized into two groups. The first comprises linkages that affect access to infrastructure services, such as rising connection costs and dwindling availability of alternative sources of supply. The second group includes those linkages that affect the affordability of the service for those who have access, such as increasing formalization, rising prices, changing tariff structures, and rising quality standards. In some cases, linkages can affect both access and affordability. Nevertheless, the conceptual distinction is useful, because separate policy instruments may be tailored to address each aspect (Estache, Foster and Woden, 2001).

3.2.1 Access Issues

Three main types of access issues can result from infrastructure privatization as shown in Table 3.3. These are potential increases in initial connection fees, reluctance of operators to serve the poor, and reduction in the availability of alternative sources of supply.

The investment costs of state-owned enterprises are typically subsidized, and they can therefore afford to charge very little connection costs, if at all, for network expansion. To the contrary, privately operated utilities that have no access to subsidized funds often charge substantial one-time connection fees or charges to cover the costs of network expansion. High connection charges therefore often serve as obstacle to service expansion by private providers.

Table 3.3 Microeconomic Linkages between Utility Reform and Poverty

| Features | Risks | Benefits and mitigating factors |
|---|---|---|
| <i>Access issues</i> | | |
| Increase in connection fees | The fee for obtaining a connection to the infrastructure service is likely to increase substantially when privatized firms reflect actual costs of connections. | Countries can adopt rules for uniform connection costs across geographic areas. |
| Risk of “cream-skimming” or “red-lining” | Firms may have incentives not to serve the poor on an individual (cream-skimming) or neighbourhood (red-lining) basis. | Rules against cream-skimming or red-lining can be imposed. |
| Reduction in availability of alternative services | The fee for obtaining a connection to the infrastructure service is likely to increase substantially when privatized firms reflect costs of connections. | Access to alternative services will not be affected if foreseen in contracts. Availability of communal services may increase as a result of privatization. |
| Increase in network cost caused by service quality upgrades | The quality of service is likely to improve, but this may make network services unaffordable for the poor. | Evidence shows that poor households are willing to pay reasonable amounts for improved quality service. |
| <i>Affordability</i> | | |
| Increase in price | Average tariff levels can increase because of cost-recovery requirements and the need to finance quality-related investments. | Increases in average tariffs depend on pre-reform price levels and the distribution of the benefits of private participation between stakeholders. Reform can cut costs significantly through improvements in efficiency or new technologies and effective competition. |
| Tariff rebalancing | Tariff structure is likely to be reformed in ways that could increase the marginal tariff faced by the poor. | Competition is likely to decrease average tariffs, thereby possibly compensating for the impact of tariff rebalancing. |
| Formalization and revenue collection | Revenue collection and discouragement of informal connections are likely to be more effective and result in an increase in the effective price paid. | Vulnerable households may desire a formal connection, even at a cost. Safety is likely to increase with the formalization of connections. Informal connection may have been more expensive. Reform can bring technology choices that lower costs. |

Source: - Adapted from Estache, Gomez-Lobo and Leipziger (2001)

Generally, households may have to make significant investments in wiring or plumbing their homes over and above connection charges to reap the full benefits of utility connection. These costs can be prohibitive for low-income customers, preventing them from connecting to a network once it has been built. Privatization processes must therefore take into account the potential obstacles access costs pose and find ways to mitigate them. Private operators have no incentive to serve customers in poor communities because the cost of providing for them exceeds the tariff that they pay.

In general, poor customers are relatively costly to serve for several reasons.

First, higher commercial risk and billing costs may be associated with revenues collection efforts from customers with limited ability to pay. Second, as poor neighborhoods are often located in topographically difficult sites; this can increase the technical complexity of providing utility services. Finally, poor households often consume relatively small quantities of the services, whereby the fixed costs of services provision are spread over a relatively small number of units of demand.

Cross-subsidies may exacerbate this problem by reducing the amount of revenue that can be collected, thereby making poor households even more commercially unattractive to serve. Thus once competition is introduced, new entrants may be tempted to “cream-skim”, or acquire only customers that can afford tariff that is not less than the real cost of providing for them, leaving the incumbent with customers who are uneconomic to serve. One form of this is “red-lining”, where whole neighborhoods or geographic areas that enjoy service while other (typically) less profitable are essentially ignored, unless government is willing to subsidize the operators.

A substantial proportion of the poorest households lack access to conventional utility connections, and must therefore find substitutes. These include self-supply, communal supply, non-network alternatives, and alternative networks. Ironically, the private sector provides many of these substitute services, so that privatization is already a reality for the poorest households. For these customers, infrastructure reform represents a transition from informal private sector to formal private sector provision. Since the poor often rely on substitutes to conventional services, defining the role of alternative suppliers is an integral part of any sector reform strategy (Erhardt 2000),

3.2.2 Affordability Issues:

Reform can give rise to the following four broad sources of affordability restrictions: -

- Tariff increases to cover costs
- Increase in costs caused by required increases in service quality standards.
- Tariff rebalancing needed to reduce cross-subsidies.
- Formalization of payment for usage.

Although privatization has the potential to reduce the costs of service provision, the price to the customer may increase, at least in the short term. Due to political considerations, many publicly owned utilities often charge tariff that is lower than the true economic costs of provision. A key objective of reform is to make infrastructure services financially self-sustaining; hence tariff increases may be required. The extent to which prices rise or fall because of private sector participation, is to some extent, a political choice. The impact of reform on prices depends not only on pre-reform cost and tariff levels, but also on how the benefits of privatization are distributed among stakeholders.

Governments have a choice between fixing a relatively high tariff and then auctioning off the operator on the basis of the highest royalty payment, or waiving the royalty payment altogether and auctioning off the services to the party who bids the lowest service tariff. In one case, the government directly appropriates efficiency gains made by the private operator, whereas in the other they go directly to consumers. In the first case, high tariffs can be viewed as a tax on consumers to fund the fiscal deficit through a high sale value of the company rather than because of privatization. A recent survey of 600 concession contracts from around the world found that in most cases, contracts are tendered for the highest transfer or annual fee, suggesting that governments are more concerned with relieving fiscal constraints than securing tariff reductions (Guasch, 2000).

A major source of dissatisfaction with state-owned utilities has been the low quality of service provided, particularly in terms of supply interruptions and service rationing. Improving the quality of service often requires significant investments to upgrade and expand the capacity of the network. This will be reflected in higher tariffs, which may be detrimental to the poor. The balance between quality and tariffs imposed by the regulator on a private provider may be based on standards valid for the average customer but not for the poor. Differentiating quality standards (above the minimum required for safety of consumers) between classes of customers may be necessary to provide better value to the poor.

Tariff structures operated by state-owned utilities typically embody a complex array of cross-subsidies between different customer groups. These may include cross-subsidies between different services (such as water and sewerage), different sectors (such as domestic and commercial), different geographical areas (such as urban and rural), and different levels of consumption. Because existing cross-subsidies are often socially motivated, their removal may be detrimental to the poor. Perhaps the best example comes from the telecommunications sector, where, historically charges for long-distance calls have been artificially inflated to reduce the cost of local telephone calls for social reasons. Such cross-subsidies may be unsustainable once competition is introduced in long-distance telephony, so that rebalancing local and long-distance charges is often an integral component of telecommunications sector reform.

To the extent that the poor tend to make more local calls than long-distance calls, they may be adversely affected. Nonetheless, this concern is premised on the assumption that existing cross-subsidies are effective in reaching the poor. As shown later, this is not always the case. Where cross-subsidies fail to reach the poor, dismantling them should not pose any serious concern.

Due to weak commercial incentives and the unwillingness to disconnect service, state-owned enterprises often failed to collect the tariff revenue owed them. Thus, many customers effectively received the service free. Private operators usually crack down on network theft in the form of illegal connections or fraudulent meters, another means of receiving the service free. With better revenue collection after privatization, many poor customers are forced to pay for the service for the first time. The elimination of such implicit subsidies will have a negative effect on the poor if not compensated for by other measures.

Regrettably, there are no quantitative rules that guide policy makers since the effect of privatization on the poor depends on country characteristics. Nevertheless, there is need for policy makers to ascertain the following:

- (i) Who is benefiting from status quo implicit and explicit subsidies?
- (ii) Are poorer households connected to service?
- (iii) If not, are they enjoying and paying informally?
- (iv) What is the true economic value of access, taking into account social benefits or externalities?

4. Trends in Private Participation in Infrastructure in Africa

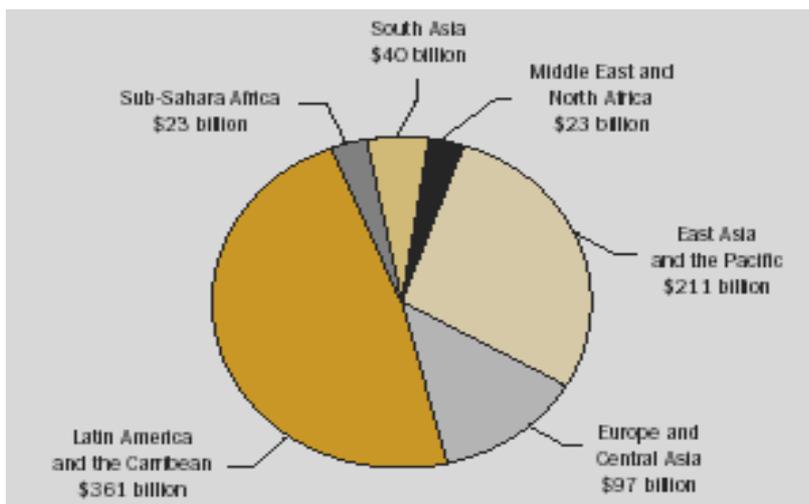
While the term "privatization" generally conjures a consistent theme, it has been applied on a continuum. Governments around the world have adopted a wide variety of approaches to engaging with the private sector for the delivery of infrastructure services. Options range from service contracts, in which relatively little responsibility and risk is passed to the private sector, to concession contracts and divestitures, where the private sector takes full responsibility for operating and investing in infrastructure services and takes on significant commercial risk.

Drawing on data from the World Bank's Private Participation in Infrastructure (PPI) database, we evaluate the extent of private sector participation in infrastructure in Africa. Overall, there was a dramatic increase in investment flows between 1990-1997 globally as governments around the world turned to the private sector for innovative and cost-effective solutions to increasing coverage, raising quality standards, and aiming for cost recovery and sustainability in infrastructure service provision. However, since the economic crises of the late 1990s, a few but high-profile cases of canceled projects, visible corporate governance and accounting problems, and a general global economic slowdown led to a chilling effect on investors and resulted in marked declines in investment in recent years (World Bank, 2003).

According to the World Bank’s Private Participation in Infrastructure (PPI) Project Database⁵, 132 developing countries transferred to the private sector the operating risk for almost 2,500 infrastructure projects between 1990–2001, attracting investment commitments of \$754 billion although actual investment may have been somewhat lower due to some canceled projects. Those projects were implemented under a wide array of schemes including management contracts, divestitures and greenfield facilities under build-operate-own (BOO) contracts, build-operate-transfer (BOT) contracts, or merchant facilities. The projects are in a range of sectors including transport, energy (electricity and gas), telecoms, and water and sewerage.

Annual investment commitments for infrastructure projects with private participation surged from \$18 billion in 1990 to a record \$128 billion in 1997 driven largely by divestitures of infrastructure companies in Latin America and greenfield power plants and mobile telecommunications companies in Asia. The number of projects with private participation also increased rapidly, from just over 65 in 1990 to a peak of 361 in 1997. Investment commitments for infrastructure subsequently declined in the wake of the East Asian financial crisis and by 2001 they had returned to a level similar to that in 1995.

Figure 4.1: Trend in Private Participation in Infrastructure



Source : PPIF Database

⁵ The World Bank’s Private Participation in Infrastructure (PPI) Project Database covers infrastructure projects that have reached financial closure and are owned or managed by private companies in developing (low- and middle-income) economies. Very small projects are not included because information on them is rarely available.

Among the developing regions, Latin America and East Asia accounted for most of the boom and decline in private activity as shown in Figure 4.1. In Latin America annual investment grew from \$15 billion in 1990 to \$76 billion in 1998, then fell to \$23 billion in 2001, the lowest level since 1995. In East Asia annual investment rose from \$3 billion in 1990 to \$41 billion in 1997, and then dropped to \$17 billion in 2001, only 40% of the peak in 1997. Telecommunications and electricity had both the biggest growth and the biggest declines in private activity in 1990–2001. Annual investment commitments for telecommunications grew from \$6 billion in 1990 to \$57 billion in 1998, and then dropped to \$32 billion in 2001, 55% of the peak in 1998. Annual investment in electricity projects rose from around \$1 billion in 1990 to \$49 billion in 1997, then fell to about \$11 billion in 2001, the lowest level since 1992. Overall, telecommunications led the growth of private infrastructure activity in developing countries, accounting for 44% of the cumulative investment in 1990–2001.

Sub-Saharan Africa attracted \$23.4 billion in investment commitments between 1990 and 2001 as indicated in Table 3.1. This represents about 7 % of the cumulative investment in developing countries over the 12-year period. Its share in annual investment in private infrastructure projects in developing countries grew from 0.3 % in 1990 to 2% in 1996 and 8% in 2001. In the 12-year period, 45 of the 48 countries in the region awarded 186 infrastructure projects with private participation though this is likely to have been underestimated for a variety of reasons. There has been a long history of private participation in the francophone countries of West Africa. Moreover, the domestic private sector in most Sub-Saharan African countries has been an important provider of infrastructure services through private wells, power generation plants, and informal, small-scale suppliers. The database has not tracked such private activity, mainly because these projects are too small.

After a slow start in the 1980s⁶, private activity in infrastructure in Sub-Saharan Africa grew significantly in the 1990s. Annual investment in infrastructure projects with private participation reached a peak of \$4.8 billion in 1997, then fluctuated between \$2.7 billion in 1998 and \$4.7 billion in 1999 (Table 4.1). The peak investment levels were driven by the privatization of South African Telkom and the award of mobile licenses, particularly those for Vodacom and MTN in South Africa.

Telecommunications led private activity in Sub-Saharan Africa in both investment and number of projects. Thirty-nine Sub-Saharan African countries introduced private participation in telecommunications in 1990–2001. Annual investment in telecommunications projects with private participation increased in 1990–97, declined in 1998, then recovered to reach a peak of \$3.2 billion in 2001. Electricity ranked second in investment and third in number of projects (Figure 4.2). Twenty-two countries in Sub-Saharan Africa introduced private participation in electricity in 1990–2001. These

⁶ The few recorded projects includes management contracts for toll roads in South Africa and the lease of Libreville International Airport in Gabon

countries awarded 29 stand-alone electricity projects as well as 7 multiutility projects involving electricity and water services .

Table 4.1
Annual Investment in Infrastructure Projects with Private Participation by Sector, Sub-Saharan Africa, 1990–2001

| Year | Electricity | Natural gas transmission and distribution | Telecommunications | Transport | Water and sewerage | Electricity and water and sewerage | Total |
|--------------|-------------|---|--------------------|------------|--------------------|------------------------------------|-------------|
| 1990 | 0.1 | -- | -- | -- | -- | -- | 0.1 |
| 1991 | -- | -- | -- | -- | 0.0 | -- | 0.0 |
| 1992 | -- | -- | 0.0 | -- | -- | 0.0 | 0.1 |
| 1993 | -- | -- | 0.0 | 0.0 | -- | -- | 0.0 |
| 1994 | 0.1 | -- | 0.7 | 0.0 | -- | 0.0 | 0.8 |
| 1995 | 0.0 | 0.0 | 0.8 | -- | -- | -- | 0.9 |
| 1996 | 0.5 | -- | 1.1 | 0.0 | 0.0 | -- | 1.5 |
| 1997 | 0.5 | -- | 3.0 | 0.5 | -- | 0.7 | 4.8 |
| 1998 | 0.8 | -- | 1.5 | 0.3 | 0.0 | -- | 2.7 |
| 1999 | 0.5 | -- | 2.8 | 1.2 | 0.2 | 0.1 | 4.7 |
| 2000 | 0.0 | 0.0 | 2.6 | 0.1 | -- | 0.7 | 3.4 |
| 2001 | 0.7 | -- | 3.2 | 0.5 | 0.0 | 0.1 | 4.6 |
| Total | 3.1 | 0.1 | 15.7 | 2.7 | 0.2 | 1.6 | 23.4 |

-- zero

Source: World Bank PPI Project Database

Private participation in transport took place in 17 Sub-Saharan African countries through 38 projects in 1993–2001 (there was no new private activity in the sector in 1990–92). Over the period, investment in private transport projects amounted to \$2.7 billion, 12% of the regional total for all private infrastructure projects. South Africa attracted the most investment in transport (\$1.98 billion), followed by Mozambique (\$476 million) and Côte d'Ivoire (\$191 million). These three countries accounted for 98% of the investment in transport projects with private participation in Sub-Saharan Africa.

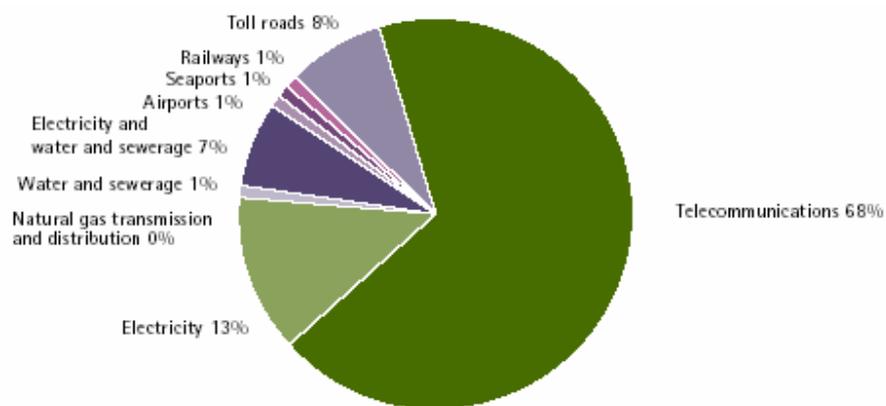
In water and sewerage, private participation took place in five countries through 10 projects in 1990–2001. These projects were located in the Central African Republic, Gambia, Mozambique, Senegal, and South Africa and they attracted investment of \$232 million. In addition, Sub-Saharan Africa had seven multiutility projects involving both electricity and water services. The 10 stand-alone water projects were implemented through 7 management or lease contracts, 2 concessions (Siza Water Company and Nelspruit in South Africa), and 1 greenfield project (Durban wastewater in South Africa). South Africa, with 3 projects, accounted for almost all investment in stand-alone water projects.

Table 4.2
Infrastructure Projects with Private Participation by Sector and Type,
Sub-Saharan Africa, 1990–2001

| Sector | Concessions | Divestitures | Greenfield projects | Management and lease contracts | Total |
|------------------------------------|-------------|--------------|---------------------|--------------------------------|------------|
| Electricity | 5 | 3 | 16 | 5 | 29 |
| Natural gas | 0 | 1 | 1 | 0 | 2 |
| Telecommunications | 0 | 15 | 85 | 0 | 100 |
| Transport | 14 | 3 | 10 | 11 | 38 |
| Water and sewerage | 2 | 0 | 1 | 7 | 10 |
| Electricity and water and sewerage | 4 | 1 | 0 | 2 | 7 |
| Total | 25 | 23 | 113 | 25 | 186 |

Source: World Bank PPI Project Database

Figure 4.2
Cumulative Investment in Infrastructure Projects with Private Participation by
Sector or Subsector, Sub-Saharan Africa, 1990–2001



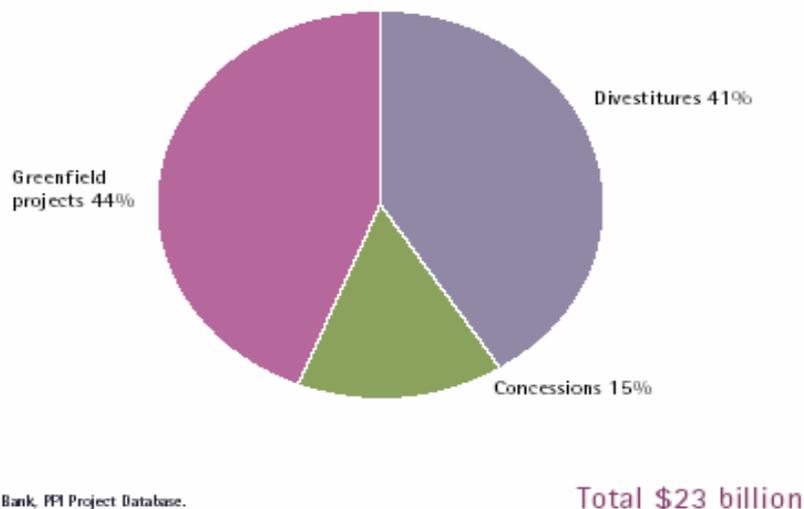
Source: World Bank PPI Project Database.

Total \$23 billion

Private activity in the transmission and distribution of natural gas commenced in 1995 with one greenfield pipeline project (the CI-11 gas pipeline) in Côte d'Ivoire. The only other project involved the privatization of a distribution system in South Africa in 2000. Investment in private projects in the sector totaled \$60 million over the 12-year period, less than 1% of the investment in all private infrastructure projects in the region.

Sub-Saharan African countries have tended to rely mainly on greenfield projects, to increase capacity. This type of project, used mainly for mobile telecommunications, led private activity in investment and number of projects (Figure 4.3). Divestitures closely followed, accounting for 41% of total investment. These transactions usually involved the sale of controlling stakes, through international tenders, to strategic investors committed to managing the companies and complying with predefined investment programs. Most divestitures took place in telecommunications and involved incumbent national operators.

Figure 4.3
Cumulative Investment in Infrastructure Projects with Private Participation by Type, Sub-Saharan Africa, 1990–2001



The top five countries, which attracted the most investment in over the time period, were South Africa, Côte d'Ivoire, Nigeria, Tanzania, and Zimbabwe. They collectively accounted for 73% of the Sub-Saharan Africa's total (Table 4.3). South Africa led private activity in the region, capturing 54% of the investment. However, its share of the private infrastructure projects in the region was much smaller—only 12%. In per capita terms, Gabon led the pace, closely followed by Cape Verde, Mauritius, and Seychelles.

Table 4.3
Top Five Countries by Cumulative Investment in Infrastructure Projects with Private Participation, Sub-Saharan Africa, 1990–2001

| Country | Investment (2001 US\$ billions) | Investment as a share of regional total (%) |
|---------------|---------------------------------|---|
| South Africa | 12.6 | 54 |
| Cote d'Ivoire | 1.5 | 6 |
| Nigeria | 1.2 | 5 |
| Tanzania | 0.9 | 4 |
| Zimbabwe | 0.8 | 3 |
| Total | 16.6 | 7.3 |

Source: World Bank PPI Project Database

Although private participation in infrastructure was spread among many projects in the region, the 10 biggest projects accounted for most of the investment commitments as indicated in Table 4.4. The 10 largest projects accounted for 63% (\$14.8 billion) of investment in all such projects in the region in 1990–2001. 5 of the 10 projects involved telecommunications companies, and half were in South Africa (see Table 4.4).

Table 4.4
Top 10 Infrastructure Projects with Private Participation, Sub-Saharan Africa, 1990–2001

| Project | Investment (2001 US\$ billions) | Sector | Country |
|-------------------------------------|---------------------------------|--------------------|---------------|
| Telkom SA | 5.7 | Telecommunications | South Africa |
| Vodacom | 2.9 | Telecommunications | South Africa |
| Mobile Telecommunications Network | 1.5 | Telecommunications | South Africa |
| N3 Toll Road | 0.8 | Transport | South Africa |
| Cote d'Ivoire Telecom | 0.7 | Telecommunications | Cote d'Ivoire |
| Groupement SHEC | 0.7 | Electricity | Mali |
| Societe d'Energie et d'Eau du Gabon | 0.7 | Water and sewerage | Gabon |
| African Power | 0.7 | Electricity | Zimbabwe |
| Econet Wireless Nigeria | 0.6 | Telecommunications | Nigeria |
| N4 Toll Road | 0.5 | Transport | South Africa |
| Total | 14.8 | | |

Source: World Bank PPI Project Database

5. Sectoral Evaluation of Infrastructure Privatization

5.1 Water and Sanitation

More than 1 billion people in the developing world currently lack access to clean water and nearly 1.2 billion lack adequate sanitation. An estimated 12.2m people die every year from diseases directly related to drinking contaminated water (World Bank 2003, p.1). Improved investment in water services and their more efficient management are a development priority for most African countries. The Millennium Development Goal is to halve the number of people using unsafe water by 2015.

Africa has the lowest water supply and sanitation coverage of any region in the world. In year 2000, coverage levels for water supply and sanitation were 62% and 60% respectively. According to the World Health Organization, in order to meet the millennium development goal of ‘halving the unserved population by 2015’; urban Africa will require an 80% increase in the numbers of people served. This objective would require, on average, about 6,000 to 8,000 new connections every day.

Private water suppliers exist in all developing countries in the form of water vendors at the street level, but there was little privatization of piped water services in developing countries before 1990 (Snell, 1998; Collignon and Vézina, 2000). Where privatized services existed, for example in Cote d’Ivoire, these were usually French speaking former colonies that had inherited a reliance on private firms for water services, as exists in France. Between 1984 and 1990 only eight contracts for water and sewerage projects were awarded to the private sector world-wide and the cumulative new capital expenditure in private water services totaled less than US\$1bn (Kirkpatrick, et. al. 2004). However, during the 1990s there was increased water privatization activity, stimulated by donor agency pressures⁷, and in 1997 the total figure for private investment had risen to US\$25bn. By the end of 2000, at least 93 countries had privatized some of their piped water services, including Argentina, Chile, China, Colombia, the Philippines, South Africa and the transition economies of Central Europe, as well as Australia and the UK (Brubaker, 2001 and Parker and Kirkpatrick, 2004). Between 1990 and 2002, there were 206 water and sanitation projects in 43 developing countries with 15 Latin America and the Caribbean countries accounting for 100 projects, 7 countries in East Asia and the Pacific region for 51 projects and 12 countries in Europe and Central Africa having 37 projects. By contrast there were 10 projects in 5 sub-Saharan Africa countries as indicated in Table 5.1. In terms of the amounts invested, Latin America and the Caribbean accounted for over 50% of the total investment.

Except in the United Kingdom where water privatization has been conducted by sales of the complete system, the French model exemplified by concessions or leases has been most common. Under this model, the private contractor collects all the revenues for a water service, carries the cost of operating and maintaining it, and keeps the surplus as a profit. A more restricted form is the ‘management contract’ whereby the company is paid

⁷ A review of IMF loan policies in forty random countries reveals that, during 2000, IMF loan agreements in 12 countries included conditions imposing water privatization or full cost recovery.

a fee for managing the undertaking but does not take over the revenues. Nevertheless, problems have been experienced with the different model.

Water privatization has a relatively long history in Africa beginning with Cote d' Ivoire, which entered a lease company with SODECI, a subsidiary of SAUR in 1960. As far back as 1959, an international tender was launched shortly before independence to select a private operator which would be responsible for the provision of municipal water services in Abidjan. The French company SAUR, won the tender and subsequently formed a new company, SODECI, with SAUR as main shareholder" (Kerf, 2000). Table 4.2 presents the record of water privatization in Africa. Up to 1997, water privatization was limited to a few Francophone African Countries, which granted concession to French companies. Since 1999, the privatization of water has accelerated in Africa as a result of the pervasive influence of the IMF and World Bank.

Table 5.1
Private Participation in Water and Sewerage by Region, Developing Countries, 1990–2001

| Region | Countries | Projects | Investment (2001 US\$ billion) |
|---------------------------------|-----------|------------|--------------------------------|
| East Asia and Pacific | 7 | 51 | 15.3 |
| Europe and Central Asia | 12 | 37 | 3.3 |
| Latin America and the Caribbean | 15 | 100 | 20.7 |
| Middle East and North Africa | 3 | 4 | 0.1 |
| South Asia | 1 | 1 | 0.2 |
| Sub-Saharan Africa | 5 | 10 | 0.2 |
| Total | 43 | 203 | 39.8 |

Source: World Bank PPI Project Database

The existing case study evidence on the results of water privatization presents a mixed picture with some improvements in the reliability and quality of services and population served, but instances of much higher water charges and bouts of public opposition leading to cancelled schemes. This evidence is reviewed in Kirkpatrick et. al. (2004). Estache and Kouassi (2002), examine a sample of 21 African water utilities for the period 1995/97. They estimate a production function from an unbalanced panel data set and use Tobit modelling to relate resulting inefficiency scores to governance and ownership variables. The study concludes that private ownership is associated with a lower inefficiency score. However, only three firms in their sample had any private capital and levels of corruption and governance were far more important in explaining efficiency differences between firms than the ownership variable. Clarke and Wallsten (2002) conducts a study of water supply in Africa from the mid to late 1990s. They report greater service coverage under private ownership. On average, they found that supplies for lower-income households (proxied by educational attainment) are smaller where there was a state-sector operator. They conclude that private participation in water schemes leads to more supplies to poorer households than where there is a reliance on state-owned suppliers and suggests privatization as a means of improving service provision.

Table 5.2 Water Privatisation in Africa

| Country | Company | Year | Method (% sold) | Main strategic investor(s) | Comments |
|--------------------------|---|------|---------------------|-------------------------------------|--|
| Burkina Faso | ONEA (Office National de l'Eau) | 2001 | Management contract | Vivendi | In partnership with Cabinet Mazars and Guerard, Vivendi was awarded a 5-year support and service contract (supported by World Bank financing). The contract covers the management of the customer service and finance activities with the assistance of a permanent team of 3 experts on site. |
| Central African Republic | SNE (Société Nationale d'Eaux) | 1991 | Lease (75) | SAUR | In 1995, a 15-year lease/concession contract was signed with SAUR. However, the contract is less a leasing than an affermage since the former state-owned company was split into 2 entities: - SNE, a 100% company held by government for asset-owning - SODECA, the private operating company (with SAUR as main shareholder) |
| Cote d'Ivoire | SODECI (Société de Distribution d'Eau de Cote d'Ivoire) | 1988 | Lease (51) | SAUR | SODECI was the first privatization to occur in the water sector on the continent. An international tender was conducted to select a private operator which would be responsible for the provision of municipal water services in Abidjan. The French company SAUR, won the tender and subsequently a new company, SODECI, was formed with SAUR as main shareholder. In 1987, a re-organisation of the Ivorian water supply was initiated by the government, leading to a design of a new contract that appears to be a mix between concession and lease. Even though no state-holding company responsible for the owning of the assets was set, these functions were performed by the line ministry making the contract close to an affermage. |
| Guinea | DEG (Entreprise Nationale de Distribution de l'Eau Guinéenne) | 1989 | Lease (51) | SAUR | In 1989, DEG was thus split up into 2 entities: - SONEG, a 100% state-owned company responsible for owning sector assets and for planning and financing investment - SEEG, the Société d'Exploitation des Eaux de Guinée, a joint venture between SAUR and Vivendi (formerly Compagnie Générale des Eaux) in charge of the operations and maintenance, as well as of the renewal of small pipes. At the end of 1999, the contract had run its 10 year course, and the government signed an interim 1-year lease contract which came into effect on December 31st 2000. However, efforts to negotiate a new 15-year lease contract broke down, and SEEG was renationalized |
| Mozambique | Water services in 5 cities: Maputo, Beira, Quelimane, Nampula, and pembra | 1999 | Concession (70) | Consortium led by Aguas de Portugal | Aguas de Mocambique is a joint venture resulting from the merging of the water services of 5 cities. A 15-year water concession for Maputo and Motola, as well as a 5-year one for the other 3 cities were awarded to the consortium in 1999, beating competition from Suez and Vivendi. Initially, Aguas de Mocambique was 38,5 per cent owned by SAUR, 31,5 per cent owned by Aguas de Portugal, and 30 per cent owned by the local investors. In 2002 however, SAUR withdrew from the contract, selling its shares to Aguas de Portugal which became the company's major shareholder. |
| Republic of Congo | SNDE (Société Nationale de Distribution d'Eau) | 2002 | Lease | Biwater | In February 2002, UK firm Biwater was awarded a leasing contract to operate SNDE distribution activity, beating competition from SAUR and Vivendi |
| Senegal | SONEES (Société Nationale des Eaux du Sénégal) | 1996 | Lease (51) | SAUR | Rather than a 10-year lease/concession contract, this is an affermage contract which led to the creation of 2 distinct entities: - SONES (Société Nationale des Eaux du Sénégal), a 100 per cent state-owned company which, according to Kerf (2000) was to receive the difference before total consumer tariffs and SDE's remuneration and which would be responsible, inter alia, for owning sector assets, planning and financing investments (except for the renewal undertaken by SDE), and for monitoring the activities of SDE - SDE, the Sénégalaise des Eaux: the operating company with SAUR as main shareholder. |
| South Africa | Dolphin Coast | 1999 | Concession (58) | Siza Water (SAUR's subsidiary) | Dolphin Coast, with a 30-year concession to run water and waste-water services was awarded to Siza Water (a subsidiary of SAUR). |
| South Africa | Nespruit | 1999 | Concession (40) | Biwater | 30-year concession contract |
| South Africa | Johannesburg Water | 2001 | Management contract | Ondeo/Northumbrian | 5-year water management contract in Johannesburg, which covers the 6 municipal water and wastewater structures of the city, and its 3 million inhabitants. |
| Uganda | Ugandan National Water and Sewerage Corporation (NWSC) | 2002 | Management contract | Ondeo (Suez's subsidiary) | In January 2002, Suez subsidiary, Ondeo, beat Vivendi to be awarded a 2-year contract to manage and operate the water supply and sewerage services of the Kampala area, taking over from a german technical assistance team. |

Sources: Hall, Bayliss and Lobina (2002) and OECD (2004).

Kirkpatrick, et al (2004) using a range of performance measures assess the impact of private capital on performance in water services in Africa. The database comprises 110 water utilities in Africa and only 9 utilities situated in eight countries reports private sector involvement. The study suggests that private ownership is associated with higher performance, although it is not axiomatic that private suppliers are more efficient. In fact, Hall (2001) argues that public sector ownership is not in itself a cause of efficiency or an inferior basis for providing water and sanitation. The great majority of population in developed countries has water supplied by public sector undertakings. In the EU-everywhere except for the UK and France, water supply is predominantly public sector managed. In the USA, Canada, Japan, Australia and New Zealand the picture is the same as privatization or public –private partnerships (PPPs) are the exception.

Table 5.3
Withdrawals from Water Privatization in Africa

| COUNTRY | COMPANY | PARENT | REASON FOR WITHDRAWAL |
|--------------|---------------------|--------------|---|
| Gambia | MSG | Sogea | Bad relations between investor and government from beginning, exacerbated by aggressive disconnection campaign. Contract unilaterally terminated in 1995, following coup. |
| Ghana | Azurix | Enron | World Bank withdrew funding because of lack of transparency in contract award |
| Guinea | SEEG | Saur/Vivendi | Breakdown in contract renewal negotiations |
| Kenya | Seureca Space | Vivendi | Contract suspended after outcry over contract terms; World Bank commissioned study of alternative privatization options |
| Mozambique | Aquas De Mozambique | Saur | Reasons for withdrawal not made public |
| South Africa | Fort Beaufort | Suez | Contract nullified |
| Zimbabwe | - | Bewater | Company withdrew from negotiations for commercial reasons |
| | Gweru | Saur | Negotiations suspended in 1999. |

Sources: Hall, Bayliss and Lobina (2002) and PSIRU Database

Unfortunately, most of these endeavours have meant with failure. In several instances, there have been withdrawals for reasons ranging from bad relations between investor and government to breakdown in contract renewal negotiations. Table 5.3 documents the withdrawals as well as the reason for withdrawing. Nowhere has privatization met intense resistance In Africa as in Water. There have been a number of effective campaigns

against water privatization in Sub Saharan Africa notably in Ghana⁸, Kenya and South Africa.

5.2 Power

Electric power is critical to economic and social well-being. The provision of electricity is perhaps the most capital-intensive of all infrastructure activities, requiring massive investments in power generation, transmission, and distribution systems and related facilities.

Electricity demand in Africa is very low. Average electricity consumption per capita in sub-Saharan Africa is estimated to be about 456 kWh (World Bank, 2004). This is about two and half times less than the per capita consumption in Latin America and Caribbean region (1,493 kWh). The World Development Indicators (2004) also indicates that total electricity production for Sub-Saharan Africa was 294.8 kwh in 2001 with South Africa accounting for 211.5 kwh or 75 percent. Even then, this is abysmally low and represents only 7.6 percent of electricity produced in the United States (3,863.8 kwh) and 51 percent in India (576.5 kwh). Provision of electricity is largely confined to the privileged urban middle and upper income groups as well as the formal commercial and industrial sub-sector. Household electrification is low especially in the rural areas of sub-Saharan Africa where about 70 % of the population resides.

Africa's enormous energy potential remains vastly under exploited. While almost half of the continent's 53 countries could profitably produce hydropower, only 7 per cent of this potential has so far been harnessed. The bulk of the electricity produced in Africa is from coal (69.1 %) due to the large coal plants in South Africa. Hydro generation accounts for 19.7 %, gas 4.4 %, nuclear 3.2% and oil 2.9 %. Traditionally, power utilities in Africa have enjoyed a monopolistic hold over their national electricity industry. There is growing consensus that the monopoly has contributed to the undeniable underperformance in the delivery of electricity services (Karekezi and Mutiso, 1999). Power sector utilities are characterized by unreliability of power supply; low capacity utilization and availability factor; deficient maintenance; poor procurement of spare parts; and, high transmission and distribution losses among other problems.

Some of the power systems in Africa record distribution losses as high as 30% compared with the international benchmark of about 10%-12%. The financial performance of most utilities in several African countries is equally unsatisfactory. Mismanagement, poor operational performance, and distorted tariff structures resulting in poor economic efficiency and low returns on investment. In many cases, non-payment by customers particularly government has been mainly responsible for the poor financial state of utilities. In January 2002, for example, the Kenyan government owed Kenya Power and Lighting Company (KPLC) Kenyan shillings (KShs) 2.5billion (approx US\$ 310 million).

⁸ The most successful perhaps has been in Ghana where the Integrated Social Development Centre (ISODEC), a Ghanaian NGO led the coalition against water privatization. It was reinforced by research from Christian Aid and widespread international support by Academics and NGOs worldwide.

Power sectors in many developing countries are undergoing fundamental changes that are enormous in their scope and depth. Across the world, electricity reform or restructuring has been taking place. The vertically integrated government owned utilities, responsible for generating, transmitting and distributing electricity are being unbundled into separate entities or subsidiaries of generation, transmission, distribution and retailers. In Africa, these reforms are largely driven largely by international financing institutions. Since 1993, reform has been a World Bank condition for lending to the power sector in Africa.

This process is typically characterised by deregulation of prices, creation of market mechanisms for trading electricity in wholesale and retail markets, and privatization of the existing electricity supply industry (ESI). Bacon and Besant-Jones (2002) categorized the variety of market structures in the electricity industry according to increasing degree of competition to enable a description of the extent of reform. Model 1 is characterized by monopoly at all levels of the supply chain. Model 2 (purchasing agency) allows a single buyer or purchasing agency to encourage competition between generators by choosing its sources of electricity from a number of different electricity producers. Model 3 (wholesale competition) allows distribution companies to purchase electricity directly from generators they choose, transmit this electricity under open access arrangements over the transmission system to their service area, and deliver it over their local grids to their customers. This brings competition into the wholesale supply market but not the retail power market. Model 4 (retail competition) allows all customers to choose their electricity supplier, which implies full retail competition, under open access for suppliers to the transmission and distribution systems. Reform programs are designed to progress through these models, starting from model 1 and progressing through model 2 or 3 until eventually reaching model 4.

Africa lags behind other regions in implementing reforms in the power sector. Reform has been limited to the concessioning of utility management to private operators (usually foreign power utility) in some francophone countries and the introduction of one or more IPP (model 2); Zambia has privatized a generation station and its local transmission grid in the copper-belt area, while Togo has privatized its small power utility without restructuring under a 20-year concession. Several other African countries are considering reforming their power sectors mainly along the lines of model 3. This is being complemented by the development of regional power pools all over the continent to enlarge markets⁹.

Table 5.4 presents the main privatization in the power sector in Africa. The contracts, broadly used in sub-Saharan Africa, are dominated by affermage, especially in Francophone Africa. These are management contracts that include the award of a lease agreement (with concession elements in some cases) to a private enterprise to run a system for a period of years. Contrary to management contract, the concessionaire receives all the revenues and costs of the operation, and usually faces a greater degree of

⁹ The Southern African power pool was created in 1995 following the signing of a Memorandum of Understanding by the twelve countries in the Southern African Development Community (SADC). The coordinating Centre is based in Harare, Zimbabwe. The East African pool plans to interconnect Kenya, Uganda and Tanzania while the West African power pool plans to interconnect Cote d' Ivoire, Nigeria, Benin, Togo and Mali

freedom to determine the commercial strategy. “Affermage” contracts are usually for long terms (up to 20 years) and are consistent with continued public ownership of assets, and price regulation. They often induce the creation of what Kerf (2000) described as “State Holding Companies” which are 100 percent state-owned entities. They have been set up in Guinea, Senegal, Central African Republic, and Gambia.

Table 5.4: Privatisation in the Power Sector in Africa

| Country | Company | Year | Method (%age sold) | Main strategic investor(s) | Comments |
|---------------|--|------|---------------------|---|---|
| Cameroon | SONEL (Société Nationale d'Electricité) | 2001 | Concession (51) | AES-Sirocco | A concession was awarded for a 20-year period in July 2001 ensuring the monopoly of the generation, transport and distribution of electricity. |
| Cote d'Ivoire | CIE (Compagnie Ivoirienne d'Electricité) | 1990 | Concession (51) | SAUR/EDF | In 1990, a leasing agreement was signed with CIE providing it with a concession to manage generation, transmission and export of electricity for a 15-year-period renewable twice for 3 years each. Ownership of assets and responsibility for investment remained with the old public enterprise which had been responsible for managing the sector (EECI) while the capital of the operating company CIE was divided as follows: SAUR: 33 per cent; EDF: 18 per cent; State: 49 Per cent. |
| Guinea | SNE (Société Nationale d'Electricité) | 1995 | Lease (66) | EDF/SAUR/Hydro Quebec International | The 10-year leasing contract is an affermage one. In 1995, SNE was split up into two entities: - ENELGUI, a 100 per cent state-owned asset owning company - SOGEL, the private operating company. However, the contract broke down in 2002, leading to the renationalisation of SOGEL and to its merger with ENELGUI to form a new state-owned company: EDG (Electricité de Guinée) |
| Tanzania | TANESCO (Tanzania Electricity Supply Company) | 2002 | Management contract | NetGroup solutions (South African Engineering firm) | The NETgroup Solutions will be paid a management fee of \$2.6 million for its basic services for two years. The contract led to a huge scandal after the East African Newspaper revealed that the firm's Tanzanian partner was a company owned by President Benjamin Mkapa's brother-in-law. Since then, the government rejected a parliamentary demand to reveal the details of Tanesco's management contract explaining and explained that the privatization process would continue in secret. |
| Togo | CEET (Compagnie d'Énergie Électrique du Togo) | 2000 | Concession | Elyo/Hydro-Québec | According to PSIRU, "Hydro-Québec International and ELYO won the tender to manage Togo's state electricity company, CEET. The group offered \$31.7 million (CFA Francs 21.74 billion) for the five-year renewable contract beating competition from two other French companies, Vivendi and SAUR. HQI and ELYO have committed to pay off CEET's debts of CFA francs 7.5 billion to the CEB electricity generator and will also pay CFA francs 350 million annually to an electricity regulator, which has yet to be set up. |
| Uganda | UEGC (Uganda Electricity Generation Company) | 2002 | Concession | ESKOM Uganda Ltd (subsidiary of ESKOM Enterprises South Africa) | ESKOM Uganda Ltd, a subsidiary of ESKOM Enterprises South Africa has signed a \$500 000 concession agreement with the government in 2002 to run the power generation business at the Kiira and Nalubale power stations in Jinja. |
| Zambia | ZESCO (Zambia Electricity Supply Company) | 1999 | Management contract | Elyo/Lysa, subsidiaries of the Suez/Lyonnais group | The management contract has been granted to carry out a pilot project to enhance the financial position of ZESCO. This should prepare step towards an hypothetical privatization of the company |

Source : OECD 2004.

Power privatization in Africa has also accelerated the introduction of Independent Power Producers (IPPs), an emerging form of private sector participation in Africa's power sector. With demand outstripping supply in many African countries, independent power projects are becoming a major source of new power generation capacity in these countries. IPPs are electricity generating companies owned by the distribution company, but sell their output to the electricity distribution organisations, or directly to larger customers. They may be created by selling existing power stations to a new owner, or by licensing a company to build and operate a new power station. They have become a major source of new power generation in several African countries (Table 5.5). In

countries such as Ghana, Namibia, Uganda and Zimbabwe the capacity of IPPs is greater than the prevailing installed state owned capacity (Karekezi, 2002).

Table 5.5: Major IPP projects in sub-Saharan Africa as of August 2000

| Country | Capacity/place | Year project signed | Companies |
|---------------|--|---------------------|--|
| Cote d'Ivoire | 210MW at Vridi | 1990 | CIPREL (SAUR/EdF joint venture) |
| | 210 MW (Scheme VII) | 1994 | SAUR/EdF |
| | 288 MW at Azito (BOOT Project) | 1998 | EdF/ABB |
| Ghana | 110 MW at Takoradi Power Station | 1997 | CMS-VRA |
| | 110 MW Takoradi II | 1999 | CMS-VRA |
| | 220 MW near Tema | 1998 | KMR Power, EPDL and Marubeni |
| | | 1999 | Union Fenosa |
| Kenya | 80 MW Tema | | |
| | 74 MW Kipevu II, Mombasa | 2000 | Cinergy, IFC, CDC |
| Namibia | 750 MW at Oranjemund (Kudu) | 1996 | National Power, Shell, Nampower and ESKOM |
| Nigeria | 548MW (build and operate) | 1999 | Enron |
| | 276MW Southern Nigeria | 2000 | Siemens |
| Senegal | 60MW | 1999 | General Electric |
| | 37MW | 1998 | HQI |
| Tanzania | 100 MW at Dar es Salaam(contract disputed and now under arbitration with World Bank) | 1997 | Independent Power, Tanwat: venture between Tanzanians and a Malaysian Company |
| | 110MW Songo-songo region | proposed | Consortium led by Ocelot (Canada) |
| Uganda | 250-300 MW at Bujugali (30 year BOOT) | 1999 | Nile Independent Power (joint venture between AES and Ugandan firm, Madhivani International) |
| | 200 MW at Karuma Falls | proposed | Joint venture between Sole Craft (Norway) and Packwatch Power (Uganda) |
| Zimbabwe | 660 at Hwange | 1996 | YTL Power (Malaysia) |
| | 1,400 MW at Gokwe North | 1998 | Consortium of National Power, ZESA and minor private investors |

Source: Bayliss and Hall (2000)

While past and ongoing reforms in the power sector in Africa have registered some encouraging results, there are still a number of important challenges that are yet to be addressed. First, is the need for sustained improvement of the technical and financial

performance in the electricity industry. In a number of African countries, the advent of IPPs has certainly improved the availability of power by boosting national installed capacity. In addition, in certain countries, changes ushered in by new management teams usually under some form of contract management arrangement has resulted in attitudinal changes, notably with respect to debt collection levels. The long-standing problems of poor performance at the transmission and distribution end, however, remain intractable. Undue emphasis has been placed on increased generation when a significant proportion of problems facing many African utilities pertain to transmission and distribution. Reform has largely failed to address the challenge of expanded electrification. Consequently, they have not made much impact on increasing access to electricity. With the exception of Mauritius, South Africa, and Ghana and to a lesser extent, Zimbabwe, the majority of sub-Saharan African countries continue to register low levels of national electrification. In several countries, rural electrification levels are in single digit levels and urban electrification levels are still well below 50%. The emphasis on profitability appears to have relegated expanded electrification of the poor to the bottom of the priority list. The only measure that has widely been adopted is the introduction of a rural electrification levy (usually of the order of 5%) on national tariffs to cater for rural electrification. In some countries, this levy is channeled through the bureaucratic main line Government Ministries thus yielding few tangible results (Karekezi, et al. 2001). In Kenya, for example, the rural electrification fund has been used by the utility to implement high cost and unviable rural electrification projects.

5.3 Telecommunications

Reliable, affordable and cost effective telecommunications infrastructure is not only a prerequisite for the Information Society in Africa but also as key to improved access to basic services and the achievement of the Millennium Development Goals. The worldwide development of information and communication technology (ICT) has accelerated dramatically over the past decade, spurred by an increasingly global economy, technological advances, increased competition, and a loosening of trade restrictions.

Investment in ICTs has grown substantially in both developed and developing countries. Despite some remarkable changes with recent reforms in the telecom sector across the continent, overall teledensities remain extremely low, with the rollout of fixed lines by incumbent operators barely inching forward in most countries, while the uptake of mobile telephony moves rapidly past it. With about 12% of the world's population, Africa has less than 3% of the world's telephone lines.

However, telecommunication sector reforms have triggered significant private investment in networks. In the past few years, a domino effect has occurred in Africa's Telecommunications sector resulting in a flurry of reform activities which put the continent at par with the developments in other regions (Jerome, 1999). Over the past decade, Africa has made considerable progress in increasing access and the number of telephones per capita increased from below 1 percent in 1990 to 5 percent in 2002. Internet access has also increased significantly with an estimated 3.1 million internet

users in Sub-Saharan Africa (excluding South Africa) at year-end 2002 up from 0.2 million in 1998. Mobile technology has penetrated widely in Africa. Fuelled by competition and the introduction of prepaid services, growth of mobile cellular and other wireless technologies in the past few years has been exponential narrowing the digital divide. Mobile penetration had reached 6.2% at the end of 2003, in contrast to 3% for fixed line.

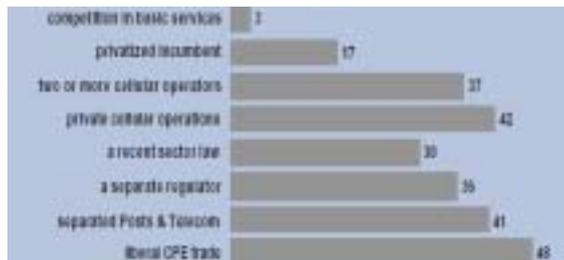
Africa's strategies for reforming telecommunications however provide a rich diversity of approaches. Box 5.1 adapted from Besançon and Ampah (2004) presents the reform status in Africa as at November 2003. As indicated in the Figure 4.1, 41 sub Saharan African countries have separated post and telecommunications, 30 have a recent sector law, 3 countries have introduced competition in basic services, 37 countries have two or more cellular operators and 36 countries have a separate regulator. There have also been some noteworthy efforts to expand telecommunications to rural areas through the institution of Universal Service Obligations and funds for rural communications development, and in setting targets for provision of services and the quality and extent of national connectivity. In addition, cellular providers have been licensed in almost all of the countries.

The liberalization of the mobile telecommunications market in particular has resulted in an unprecedented increase in the number of market players and users. In a period of six years, cellular competition extended from four to 30 countries. According to International Telecommunications Union (2004), the number of mobile subscriber in Africa has increased by over 1000% between 1998 and 2003 to reach 51.8 million. Mobile user numbers have long passed those of fixed line, which stood at 25.1 million at the end of 2003. Since Uganda became the first African country where mobiles outnumber fixed-line connections, more than 30 other nations have followed suit. In countries like Morocco, Kenya and Nigeria, mobile subscribers outnumber fixed-line users at an incredible ratio of 6:1. There were about three times more mobile than fixed phones in the region by 2002. In 27 of the 30 countries where the number of mobile subscribers exceeded the number of fixed telephone main lines in 2001, competition in the mobile sector had been introduced and in two out of the remaining three, the single mobile operator was privately-owned.

The use of the internet has grown relatively rapidly in most urban areas in Africa, in much the same pattern as the adoption of the mobile phone, which followed shortly after. As an indication, five years ago, only a handful of countries had local internet access; now it is available in every capital city. Each computer with an internet or email connection usually supports a range of three to five users. This puts current estimates of the total number of African Internet users at around 5-8 million, with about 1.5-2.5 million outside of North and South Africa. This is about 1 user for every 250-400 people, compared to a world average of about one user for every 15 people, and a North American and European average of about one in every 2 people.

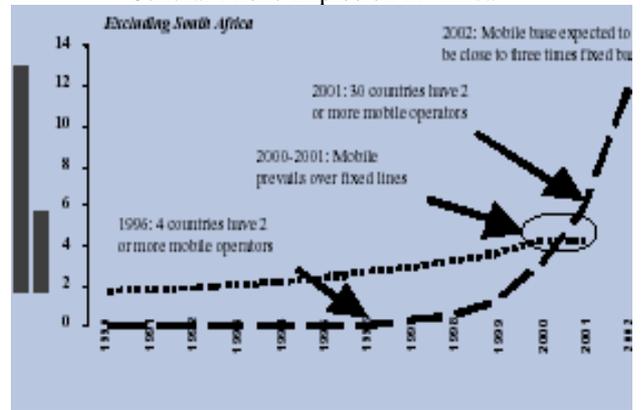
Figure 5.1

As at November 2003, no of countries (Out of 48) that have:



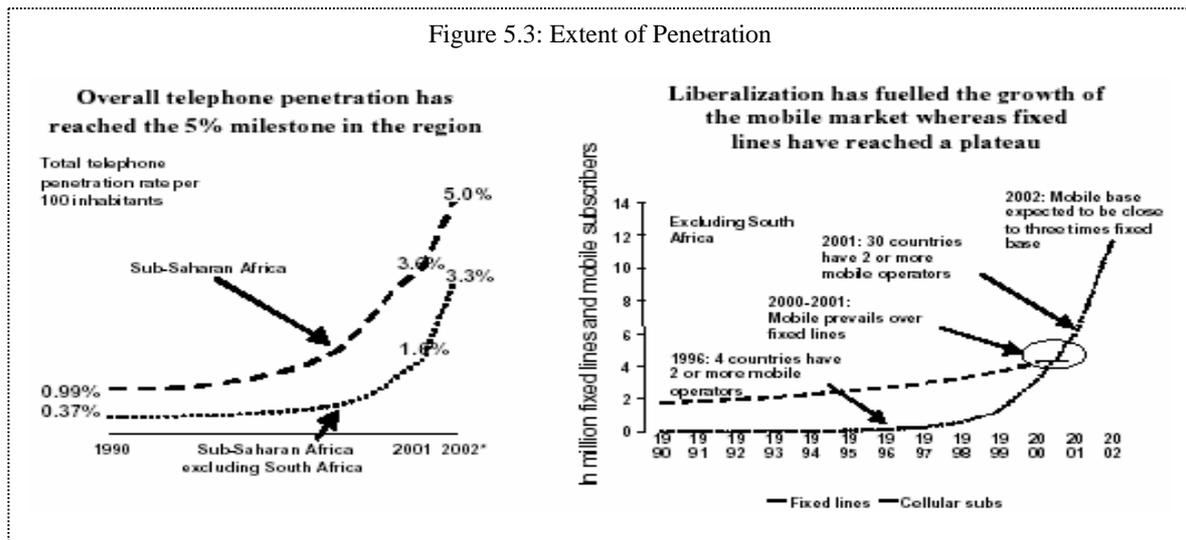
Source: World Bank and ITU Database

Figure 5.2
Cellular Phone Explosion in Africa



Source: Based on ITU and World Bank Data

Figure 5.3: Extent of Penetration



Source: Laurent Besançon and Mavis A. Ampah (2004)

About 17 countries have equally privatized the incumbent as indicated in Table 5.5. Over the past 2 years, there has been a dramatic slowdown in the pace of telecommunications transactions in SSA. Negative investor sentiment has been exacerbated by the global equity contraction in the telecommunications sector. The recent sale of a stake in Telkom South Africa is a case in point to illustrate the fall in value (and hence of attractiveness to investors) of the telecom sector: the stake sold in 2003 valued the company as low as

US\$188 per line (fixed & mobile adjusted for 50% level of ownership in its mobile subsidiary Vodacom), compared with US\$800 per line raised in 1997 when SBC and Telkom Malaysia bought 30% of the company.

Table 5.5: Privatization in Telecommunications in Africa

| Country | Company | Year | Method (% sold) | Main strategic investor(s) | Comments |
|--------------------------|---|----------------|-----------------------------------|---|---|
| Cameroon | Camtel Mobile | 2000 | Lease (95) | Mobile Telephone Network (South Africa) | This transaction is a competitive sale combined with a 15-year lease contract. |
| Cape Verde | Cabo Verde Telecom | 1995,1996,1999 | Competitive sale of shares (86,6) | Portugal Telecom | Portugal Telecom:40% National Social Prov. Institute:27.9% Other National Private Sector:13.7% State of Cape Verde:13.4% Employees:5% |
| Central African Republic | Socatel | 1990 | Competitive sale of shares (40) | France Cable & Radio | Pending sale of the remaining 60% |
| Republic of Congo | Office National des Postes et Telecommunications (ONPT) | 1996 | Competitive sale of shares (67) | US Atlantic Tele Network | Pending sale of the remaining 33% (of which 5% to an employee share participation scheme) The telecom company was renamed Société d'Exploitation des Télécommunications |
| Côte d'Ivoire | Cote d'Ivoire Telecom | 1997 | Concession (49) | France Cables et Radio | This transaction is a competitive sale combined with a 20 year concession agreement, granting CI-Telecom a monopoly over land-based communications for a non-extendable period |
| Ghana | Ghana Telecommunications | 1997 | Competitive sale of shares (30) | G-Com, a 85% subsidy of Malaysia Telecom | In 2002/2003, a 3-year management contract was signed with Telecom Management Partner (TMP), a wholly owned subsidiary of the Norwegian telecommunications group Telenor ASA, in charge of installing at least 400,000 fixed lines within three years. It came after the non-renewal of the 5-year management contract signed with Telecom Malaysia along the sale of the 30% share in 1997 |
| Guinea | Sotelgui | 1995 | Competitive sale of shares (60) | Consortium led by Malaysia Telecom | Malaysia Telekom subsequently reduced its shares to 30%. |
| Guinea Bissau | Guiné Telecom | 1989 | Competitive sale of shares (51) | Portugal Telecom | Negotiations are currently undertaken with Portugal Telecom for an increase in the stake |
| Lesotho | Lesotho Telecom | 2000 | Competitive sale of shares (70) | Consortium led by Zimbabwe's Econet Wireless International | Pending sale of the remaining 30% to local investors (of which 5% to an employee share participation scheme) |
| Mauritania | Mauritel | 2001 | Competitive sale of shares (46) | Maroc Telecom | In May 2002, Maroc Telecom sold 20% of its share to Mauritanian Abdallahi Ould Noueigued (AON) private group |
| Mauritius | Mauritius Telecom | 2000 | Competitive sale of shares (40) | France Telecom | Privatization undertaken in order to restructure the company and prepare it for the liberalisation that took place early 2003. |
| Nigeria | Nitel | 2003 | Management contract | Pentascop International | |
| Sao Tome & Principe | C.S.T (Companhia Santomense de Telecommunicacoes) | 1989 | Direct sale of share (51) | Marconi (now merged with Portugal Telecom) | Private sale |
| Senegal | Sonatel | 1997,1998 | Competitive sale of shares (33,3) | France Telecom | France Télécom's ownership share was increased to 42 per cent through a recapitalization in 1999. At the time of the original sale, 10 per cent of the shares were sold to Sonatel employees at a highly discounted rate. Another 17 per cent were then offered in 1998 for public sale through the francophone regional stock exchange (BRVM) ; two-thirds were reserved for Senegalese nationals and institutions. All shares were quickly bought up, including by some 9,000 Senegalese individuals who paid a total of CFA 17 bn (\$30 mn). |
| South Africa | Telkom | 1997 | Competitive sale of shares (33) | SBC Communications:18% Malaysia Telecom:12% JSE: 3% (black empowerment) | 15 per cent of the remaining shares have been listed on the Johannesburg Stock Exchange on March,4,2003 |

| | | | | | |
|-----------------|-------------------------------------|-----------|---------------------------------|--|---|
| Sudan | Sudatel | 1994,2001 | Competitive sale of shares (50) | A large range of private investors | It is listed on the Karthoum Stock Exchange and has an authorized capital of \$ 250 million. In 2001, Sudatel became the first non-GCC (Gulf Cooperative Council) company to be listed on the Bahrain Stock Exchange. It is also the very first Sudanese company to be listed on a stock market outside Sudan. |
| Tanzania | Tanzania Telecommunications Company | 2000 | Competitive sale of shares (35) | MSI (Netherlands)/Detecon (Germany) consortium | In February 2001 MSI/Detecon paid the first tranche of \$60 million, but the second tranche due by December 31, 2001 was not paid (owing to a controversy over the soundness of TTCL's financial statements). In June 2002, the government finally decided to give back the first tranche of \$60 million to MSI/Detecon as its share for recapitalisation of TTCL. |
| Uganda | Uganda Telecom | 2000 | Competitive sale of shares (51) | A consortium led by the International Telecommunication Union's Investment Fund, WorldTel, and the Deutsche Telekom subsidiary Detecon | The consortium was the sole bidder in an international tender |
| Niger | Sonitel | 2001 | Competitive sale of shares (64) | ZTE Corporation China Right Company | ZTE Corporation China Right Company:51% National private investors:11% State:34% Employees:3% France Câble Radio:0,89% |

Source: OECD (2004).

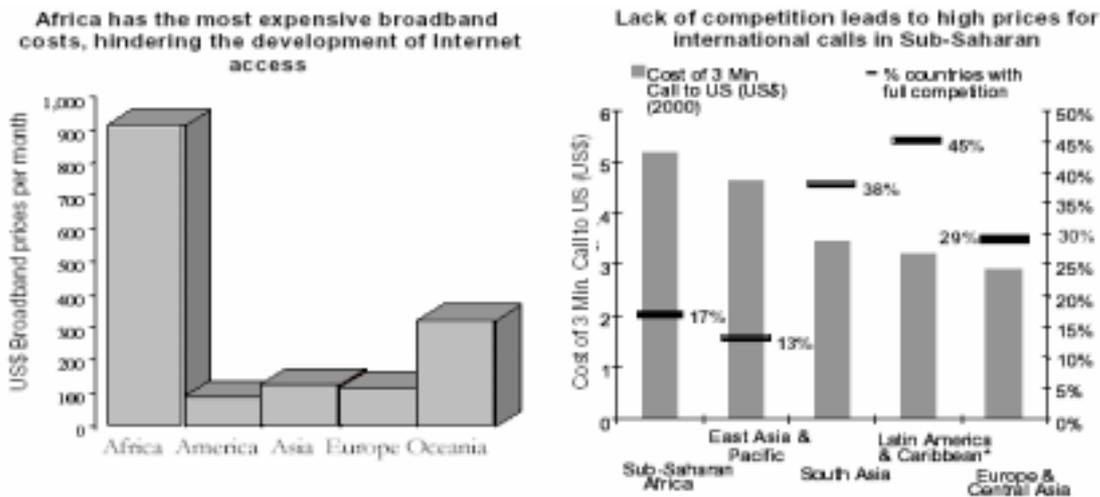
Most African capitals now have more than one internet service provider (ISP). By mid 2002, there were about 560 public ISPs across the region excluding South Africa where the market has consolidated into 3 major players with 90% of the market and about 75 small players with the remainder. According to OECD (2004) the average cost of using a local dialup internet account for 20 hours a month in Africa in 2000 was about \$60/month (usage fees and local call telephone time included, but not telephone line rental). But ISP subscription charges vary greatly - between \$10 and \$80 a month, largely reflecting the different levels of maturity of the markets, the varying tariff policies of the telecom operators, the different regulations on private wireless data services and on access to international telecommunications bandwidth. 20 hours of internet access a month in the U.S. cost \$22, including telephone charges. Although European costs were higher (\$33 in Germany, \$39 across the EU), all of these countries have per capita incomes which are at least 10 times greater than the African average. In fact, \$60/month is higher than the average African salary.

The internet however remains out of reach to the vast majority of Africans and is still mostly confined to the larger cities and towns. By early 2004, overall internet penetration in Africa was below 1.2%. The lack of telecom infrastructure is the most important economic issue currently holding back Africa's development. Despite the availability of low-cost and efficient solutions, there remains a huge unmet demand for telephone connections. There is also a wide disparity between regions. For example, the five Maghreb countries and South Africa have more telecommunication infrastructure than all the 46 countries in sub-Saharan Africa.

Only seventeen percent of African countries have full competition in the international voice segment, 45 of the 48 countries in the region are still to introduce competition in the fixed segment and 31 are yet to privatize their incumbent fixed operator. At least five satellite operators are extending their footprint over Africa and the WASC/SAT3/SAFE submarine cable link to Europe and Asia was lit in May 2002, providing transmission capacity of 80Gb/s and an ultimate design capacity of 120Gb/s. The lack of competing

providers to route international traffic combined with over-dependence on satellite technologies and a regional market fragmented into low-volume national markets has resulted in prohibitive prices for international traffic (see Box 4.2 below). This impedes the development of internet use as it creates high costs for limited bandwidth.

BOX 5.2



Prices as at July 2003

Source ITU 2003 and Bascom and Ampiah 2004

The issue of interconnection has been a bone of contention in almost every African country, with incumbents often dragging their feet over the signing of interconnection agreements, making the launch of competing mobile services difficult.

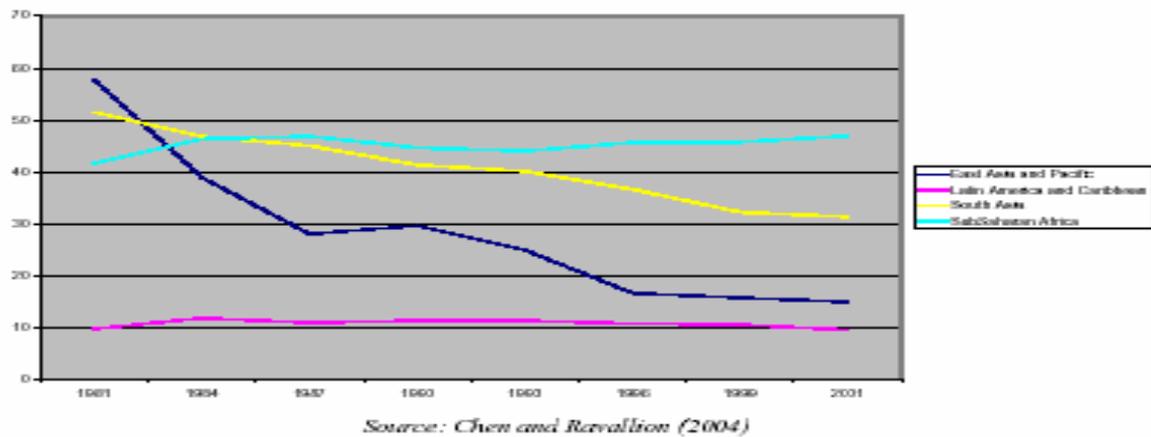
6. Evidence on Infrastructure Reform and the Poor

International statistics clearly demonstrates that among all regions of the world, Sub-Saharan Africa has both the highest levels of poverty and the worst human development outcomes according to most indicators. Meanwhile, while some regions notably Asia have made significant progress in terms of poverty reduction over the last two decades, Africa has made less progress over this period and in some of the relatively few countries for which evidence is available, poverty levels appear to have increased over the 1990s.

The World Bank monitors trends in income poverty across different regions of the developing world. Recent results covering the period between 1981 and 2001 show a sharp contrast between Sub-Saharan Africa and other regions of the developing world. Available data from Chen and Ravallion (2004) indicates that over this period, the proportion of the population living in poverty has fallen sharply in East Asia and quite remarkably in South Asia, while the proportion has increased slightly in Sub-Saharan

Africa. More dramatically, with population growth the absolute numbers living on less than the dollar per day poverty line have risen from 163 million in 1981 to nearly 313 million in 2001.

Figure 6.1: Percentage of population living below one dollar per day



For non-income poverty indicators there is less scope for making global comparisons. However, some indicators can be compared, though often over differing time periods (Table 6.1). Comparisons of infant mortality rates (a key measure of ill being) show much less improvement in Sub-Saharan Africa compared to other regions. Life expectancy in Africa has scarcely changed between 1970-75 and 2000-05, while it has increased by an average of at least nine years (and up to 13.5) in other regions. The HIV/AIDS pandemic is one (but only one) important factor contributing to this (McKay, 2004). However, Sub-Saharan Africa has made comparable progress in reducing illiteracy rates compared to other regions.

Table 6.1: Trends in Selected Non-Income Poverty Indicators

| | Infant mortality rate | | Life expectancy | | Illiteracy rate | |
|-----------------------------|-----------------------|------|-----------------|---------|-----------------|------|
| | 1970 | 2001 | 1970-75 | 2000-05 | 1990 | 2002 |
| East Asia and Pacific | 84 | 32 | 60.5 | 69.9 | 20.2 | 9.7 |
| Latin America and Caribbean | 86 | 27 | 61.1 | 70.6 | 11.4 | 15.0 |
| South Asia | 129 | 69 | 49.8 | 63.3 | 53.0 | 42.4 |
| Sub-Saharan Africa | 139 | 108 | 45.2 | 46.1 | 49.2 | 36.8 |
| All developing countries | 108 | 61 | 55.5 | 64.7 | 32.7 | 23.3 |

Sources: Human Development Report, 2004, available online <http://hdr.undp.org/statistics/data/>

Notwithstanding the widespread adoption of infrastructure reform worldwide, access to basic infrastructure services by poor people remains a problem even as governments of many developing countries have privatized these services. Many poor people continue to lack access to safe water and sanitation, modern sources of energy, and electronic means of communication.

The empirical evidence on the effect of reforms on the poor, meanwhile, is limited. Evaluating access by the poor to infrastructure services is difficult, as there is little consistent data on the subject. Cross-country data on telecommunications and electricity such as those from the International Telecommunications Union and the US Energy Information Agency respectively, for example, do not track connections by income group, regions or countries. Databases kept by utility companies themselves do not generally provide the information needed to assess the impact of privatization on the poor (Gómez-Lobo *et al.* 2000).

A consistent picture of access by the poor to infrastructure can only be gleaned through household surveys though limited since they are usually not designed to measure infrastructure usage. Clarke and Wallsten (2002) provide the most consistent data currently available and these are presented in Tables 6.2 and 6.3. Using data from MEASURE DHS+ Demographic and Health Surveys, they provide consistent cross-country information on a relatively large number of countries over time, especially in Africa. The main drawbacks to these surveys are that they contain only limited information on coverage and, since data on income is not available, education level of the household head is used as proxy for income. They assume that households headed by someone with no education tend to be poor, while households headed by someone with at least a secondary education tend to be higher-income.

A cursory examination of Table 6.2 indicates that households headed by individuals with secondary educations or higher were far more likely to have infrastructure connections than households headed by individuals with no education, with the difference especially large in low-income countries in Africa and Latin America. In low-income countries in Africa, about 80 percent of urban households headed by an individual with a secondary education had access to electricity, 63 percent had access to piped water either in their house or yard, 20 percent had a telephone, and 38 percent had a flush toilet. By contrast, only 32 percent of urban households headed by individuals with no education had electricity, 27 percent had piped water and only 10 percent had a flush toilet.

Telephone coverage among urban households in Africa headed by individuals with no education was especially low—less than 2 percent on average and less than 1 percent in most countries (Table 6.2). Although coverage was higher in low-income countries in Latin America, the basic pattern was similar. For electricity, piped water and telephones, coverage was lower—and in most cases much lower—for houses headed by individuals with no education than it was for households headed by individuals with a secondary education or higher in all low-income countries in Africa and Latin America for which data were available. In middle-income countries in Latin America, similar patterns were observed for electricity, flush toilets, and telephones, although, on average, urban households headed by individuals with no education were slightly more likely to have

access to piped water than urban households headed by individuals with a secondary education or higher. Europe and Central Asia appears different, with higher overall coverage in most sectors and less noticeable differences between households with heads of different education levels.

Table 6.2: Access to Infrastructure Sectors in Developing Countries (Percentage of Households with Access)

| COUNTRY | YEAR | Per capita GNI | Access to electricity | | Access to water | | Access to telephone | | Access to flush toilet | |
|--|------|----------------|-----------------------|-------------|-----------------|-------------|---------------------|------------|------------------------|------------|
| | | | Rich | Poor | Rich | Poor | Rich | Poor | Rich | Poor |
| Africa, low income | | | 79.8 | 32.1 | 62.8 | 26.6 | 19.8 | 1.7 | 38.2 | 9.8 |
| Mozambique | 1997 | 180 | 63.9 | 6.8 | 63.6 | 11.8 | 25.0 | 0.4 | 39.9 | 2.4 |
| Niger | 1998 | 200 | 88.0 | 22.9 | 70.5 | 17.4 | 14.6 | 0.9 | 22.6 | 1.1 |
| Chad | 1997 | 220 | 35.5 | 5.8 | 34.7 | 9.6 | 10.4 | 0.3 | 6.3 | 0.5 |
| Burkina Faso | 1998 | 240 | 85.2 | 21.3 | 62.2 | 11.4 | 34.9 | 3.0 | 17.8 | 0.9 |
| Mali | 1996 | 240 | 64.7 | 11.1 | 58.8 | 9.7 | 13.4 | 1.0 | 18.6 | 1.1 |
| Madagascar | 1997 | 250 | 83.9 | 8.5 | 52.3 | 3.0 | 9.9 | 0.3 | 30.7 | 0.7 |
| Nigeria | 1999 | 250 | 94.3 | 67.3 | 34.9 | 18.3 | 10.7 | 0.9 | 45.7 | 5.3 |
| Uganda | 1995 | 250 | 61.4 | 15.5 | 25.5 | 3.5 | 5.8 | 0.0 | 17.5 | 0.8 |
| Tanzania | 1999 | 260 | 91.9 | 19.0 | 65.9 | 45.9 | - | - | 35.0 | 1.4 |
| Togo | 1998 | 320 | 84.3 | 21.1 | 77.8 | 39.5 | - | - | 0.0 | 0.0 |
| Benin | 1996 | 350 | 85.5 | 11.0 | 86.1 | 31.8 | - | - | 0.0 | 0.0 |
| Kenya | 1998 | 350 | 60.9 | 42.0 | 71.6 | 49.4 | 15.4 | 5.8 | 58.7 | 36.1 |
| Zambia | 1996 | 360 | 87.0 | 14.3 | 81.4 | 24.0 | - | - | 82.8 | 16.4 |
| Ghana | 1998 | 390 | 94.2 | 69.1 | 64.7 | 25.6 | 14.7 | 1.9 | 40.4 | 6.0 |
| Comoros | 1996 | 410 | 89.6 | 33.3 | 52.1 | 32.1 | 35.4 | 2.9 | 33.3 | 2.4 |
| Central African Republic | 1994 | 440 | 40.4 | 7.7 | 31.7 | 5.1 | 29.9 | 1.3 | 27.9 | 1.9 |
| Guinea | 1999 | 490 | 76.5 | 43.5 | 47.0 | 23.8 | 14.8 | 2.7 | 24.7 | 2.0 |
| Senegal | 1997 | 530 | 97.7 | 55.4 | 91.2 | 60.3 | - | - | 67.4 | 15.2 |
| Zimbabwe | 1999 | 530 | 97.5 | 80.8 | 96.5 | 85.8 | 45.8 | 0.0 | 96.9 | 97.0 |
| Cameroon | 1998 | 610 | 97.8 | 53.2 | 66.0 | 13.2 | 16.4 | 3.6 | 57.4 | 3.0 |
| Cote d'Ivoire | 1994 | 660 | 95.3 | 63.8 | 84.4 | 37.4 | - | - | 78.0 | 11.8 |
| Eastern Europe and Central Asia, low income | | | 100.0 | 100.0 | 86.1 | 94.2 | 51.9 | 55.2 | 45.7 | 22.6 |
| Eastern Europe and Central Asia, middle income | | | 99.3 | 91.4 | 77.7 | 77.8 | 73.5 | 47.7 | 87.2 | 77.0 |
| Kazakhstan | 1999 | 1,290 | 99.3 | 91.4 | 85.2 | 75.5 | 58.1 | 22.9 | 19.7 | 75.5 |
| Turkey | 1998 | 3,150 | - | - | 70.2 | 80.1 | 88.9 | 72.6 | 94.7 | 78.5 |
| Latin America, low income | | | 98.4 | 68.4 | 80.6 | 47.4 | 39.5 | 5.3 | 64.2 | 10.3 |
| Haiti | 1994 | 270 | 97.6 | 56.8 | 63.7 | 15.5 | - | - | 57.0 | 0.6 |
| Nicaragua | 1998 | 370 | 99.2 | 80.0 | 97.5 | 79.4 | 39.5 | 5.3 | 71.4 | 20.1 |
| Latin America, middle income | | | 99.0 | 85.1 | 74.2 | 78.4 | 59.3 | 15.8 | 81.8 | 43.9 |
| Bolivia | 1998 | 1,010 | 99.4 | 82.3 | 93.5 | 74.7 | 56.1 | 8.0 | 64.2 | 15.4 |
| Dominican Republic | 1996 | 1,550 | - | - | 37.5 | 85.9 | 60.5 | 20.0 | 84.1 | 37.4 |
| Guatemala | 1998 | 1,650 | 100.0 | 75.7 | 49.0 | 59.0 | 60.8 | 2.8 | 97.8 | 38.8 |
| Colombia | 2000 | 2,080 | 99.9 | 95.4 | 98.8 | 94.9 | 81.2 | 39.4 | 98.6 | 84.1 |
| Peru | 1996 | 2,250 | 95.9 | 76.1 | 82.7 | 74.6 | 38.0 | 8.6 | 79.2 | 50.1 |
| Brazil | 1996 | 4,320 | 99.6 | 96.2 | 83.5 | 81.1 | - | - | 67.1 | 37.8 |

Source : Clarke and Wallsten (2002).

In addition to differences in coverage for low and high- income households, there are similar differences between coverage in urban and rural areas in most developing countries. Rural coverage was generally lowest in low- income countries in Africa. For example, about 47 percent of urban households in Africa had electricity, 37 percent had piped water, 18 percent had flush toilets and 6 percent had telephones. In comparison, only 7 percent of rural households had electricity, 4 percent had piped water, 1 percent had flush toilets and 0.3 percent had telephones. In almost half of the countries in Africa,

less than 1 in 1000 rural households had a telephone and in only one country (Zimbabwe) did over 1 in 100 rural households have a telephone.

Table 6.3: Access to Infrastructure Sectors in Urban and Rural Areas of Developing Countries (Percentage of Households with Access)

| COUNTRY | YEAR | Per capita GNI | Urban | Rural | Urban | Rural | Urban | Rural | Urban | Rural |
|---|------|----------------|--------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Africa, low income | | | 47.3 | 6.6 | 36.9 | 3.7 | 5.7 | 0.3 | 17.6 | 1.0 |
| Mozambique | 1997 | 180 | 25.9 | 2.1 | 23.4 | 0.6 | 5.4 | 0.0 | 12.3 | 0.1 |
| Niger | 1998 | 200 | 36.6 | 0.2 | 27.2 | 0.1 | 3.4 | 0.0 | 4.3 | 0.3 |
| Chad | 1997 | 220 | 9.4 | 0.1 | 11.6 | 0.2 | 1.4 | 0.0 | 1.0 | 0.0 |
| Burkina Faso | 1998 | 240 | 39.8 | 0.2 | 25.2 | 0.1 | 9.5 | 0.1 | 3.9 | 0.0 |
| Mali | 1996 | 240 | 21.6 | 0.4 | 15.8 | 0.6 | 2.4 | 0.0 | 3.0 | 0.1 |
| Madagascar | 1997 | 250 | 38.1 | 2.1 | 17.7 | 2.2 | 2.0 | 0.1 | 7.4 | 0.7 |
| Nigeria | 1999 | 250 | 85.0 | 28.2 | 24.4 | 3.8 | 5.5 | 0.2 | 31.1 | 4.3 |
| Uganda | 1995 | 250 | 40.2 | 1.5 | 12.9 | 0.1 | 2.4 | 0.1 | 9.4 | 0.3 |
| Tanzania | 1999 | 260 | 27.4 | 1.1 | 48.2 | 4.1 | - | - | 4.1 | 0.6 |
| Togo | 1998 | 320 | 41.2 | 2.5 | 51.6 | 3.4 | - | - | 0.0 | 0.0 |
| Benin | 1996 | 350 | 34.5 | 2.0 | 56.5 | 7.1 | - | - | 0.0 | 0.0 |
| Kenya | 1998 | 350 | 47.6 | 4.3 | 61.3 | 12.5 | 9.2 | 0.7 | 43.6 | 2.1 |
| Zambia | 1996 | 360 | 44.2 | 1.5 | 47.9 | 1.7 | - | - | 45.9 | 1.2 |
| Ghana | 1998 | 390 | 82.5 | 20.9 | 41.5 | 3.5 | 5.3 | 0.2 | 18.4 | 2.1 |
| Comoros | 1996 | 410 | 52.1 | 19.7 | 39.5 | 15.1 | 9.1 | 0.9 | 7.7 | 1.6 |
| Central African Republic | 1994 | 440 | 8.0 | 0.3 | 5.0 | 0.0 | 2.6 | 0.0 | 2.5 | 0.1 |
| Guinea | 1999 | 490 | 54.5 | 1.5 | 30.0 | 1.2 | 5.7 | 0.1 | 7.9 | 0.2 |
| Senegal | 1997 | 530 | 68.9 | 6.0 | 65.4 | 7.4 | - | - | 26.7 | 0.8 |
| Zimbabwe | 1999 | 530 | 87.5 | 8.3 | 91.0 | 6.2 | 16.7 | 1.3 | 94.1 | 2.2 |
| Cameroon | 1998 | 610 | 79.1 | 22.0 | 28.5 | 2.9 | 5.1 | 0.1 | 18.1 | 1.3 |
| Cote d'Ivoire | 1994 | 660 | 69.8 | 13.7 | 51.0 | 4.1 | - | - | 29.3 | 2.3 |
| Eastern Europe and Central Asia, low income | | | 100.0 | 99.5 | 87.4 | 32.7 | 52.0 | 13.3 | 49.7 | 2.8 |
| Eastern Europe and Central Asia, middle income | | | 99.4 | 93.9 | 79.9 | 28.3 | 67.8 | 44.7 | 85.1 | 14.8 |
| Latin America, low income | | | 84.5 | 20.7 | 60.2 | 13.5 | 16.5 | 1.1 | 26.6 | 1.4 |
| Latin America, middle income | | | 95.6 | 51.4 | 78.0 | 38.9 | 39.7 | 4.3 | 67.4 | 19.1 |

Source : Clarke and Wallsten (2002).

In order to make infrastructure services financially self sustaining, it is often necessary to increase tariffs that have been kept artificially below the cost of provision for many years. Such tariff increases can be quite substantial (of the order of 10% to 100%) and thus may have a significant impact on the household budget of existing customers especially the poor. Contrary to the evidence presented in OECD (2004) that associates reforms with a lowering of prices in telecommunications as a result of competition, anecdotal evidence indicates that the main infrastructure sectors have recorded substantial price increases with implication for affordability by the poor.

South Africa is one of the few countries where progress in fixed line network development has been declining. The cost of a local 3-minute call at peak time has increased by 26% per annum between 1997 and 2002. By the end of the five-year exclusivity period granted to Telkom, the incumbent fixed line operator, two million

subscribers have been disconnected due to high price of services. South Africa has slipped in international benchmark comparisons from the best in Africa to fifth (Jerome, 2004b). Also in South Africa, tariff increases of 600 per cent have been recorded in the water sector since 1996. A number of residents who were not able to pay soaring water bills were forced to go back to the original sources, either the lake or the river. The health consequences of less access to clean drinking water in South Africa was manifested during the outbreak of cholera in year 2000. There was a direct connection between the installation of prepaid meters and the unprecedented spread of cholera in KwaZulu Natal. Over 120,000 people got infected and 290 people died during the outbreak. In the most affected areas, very many people had returned to the use of unsafe water sources as they could not afford safe water. Resistance to water privatization is growing all over Africa. In Ghana, government has been forced to halt its water privatization schemes due to civil society protest, though there is another try to go ahead. In Tanzania, civil society is mobilising, as the consequences of the commercialization of the Dar es Salaam water utility are getting understood.

7. Conclusion

In the past decade, the levels of private investment in infrastructure in emerging markets have increased significantly. Approximately 2,500 private investment projects in 132 countries worth \$754 billion took place in emerging markets with varied results and about 2% of all projects cancelled or renationalized. Sub-Saharan Africa's share in annual investment in private infrastructure projects in developing countries grew from 0.3 % in 1990 to 2% in 1996 and 8% in 2001.

Although private sector participation in infrastructure services has become the new orthodoxy, these reforms have not lived up to their billing in Africa. In spite of modest achievements especially in telecommunications, there has been a gap between popular perceptions and reality on ground in infrastructure reform and privatization in Africa with its unique socioeconomic characteristics where the policy preconditions that are indispensable for effective privatization and the benefits to fully obtain are rarely met. The reform process has been deeply flawed. It frequently lacked procedural transparency and benefited well organized and powerful interest groups. In some cases, it resulted in too rapid price increases that adversely affected the poor segments of the population. Overall, infrastructure privatization has proceeded without adequate consideration being given to the needs of the poor. Even in telecommunications where privatization has improved national access to services through network expansion, weak regulation has had a negative impact on the poor through poor service quality, service cutbacks etc.

Privatization of water services has especially been problematic due to a combination of several factors including the technology of water provision and the nature of the product, the costs of organising long-term concession agreements or transaction costs, and regulatory weaknesses. A key argument for privatizing water is the theoretical benefits of competition. However, there is very little competition in water and even the World Bank has acknowledged this. Kirkpatrick, et al 2004 observes that unlike in the case of telecommunications and parts of energy supply, such as generation, where competition is

feasible, competition in the market for water services is usually cost inefficient. While there is scope for introducing some competition into billing and metering and into construction, replacement and repair work within water services, competition in the actual provision of water supplies is normally ruled out by the scale of the investment in fixed assets or network assets that are needed to deliver the product. In other words, the technology of water supply and the nature of the product severely restrict the prospects for competition in the market and therefore the efficiency gains that can result from encouraging competition following privatization.

Not only are water systems natural monopolies, but also the private part of the industry are dominated worldwide by just two multinationals Vivendi and Suez-Lyonnaise. A third French multinational, SAUR, holds a dominant position in Africa. A few contracts have been obtained by some UK companies, Thames Water (now owned by the German Conglomerate RWE). Anglian Water and International Water (jointly owned by two construction multinationals, Bechtel of the USA and Edison of Italy). Attempts by the USA Company Azurix owned by Enron to break into the market have faltered (Hall, 2001).

Infrastructure sector reform in Africa are not always designed to solve perceived problems in the sectors, but often implemented in compliance with loan conditionalities set by development aid agencies and multilateral development banks or regional and global trade arrangements. Several cycles of funding donor funding have been obtained for sector improvement with eventual reversals in the gains made due to poor management, political interference, corruption and heavy debt burden. The time frame given by donors is often too short for any meaningful reform. The "full cost recovery" principle which was originally introduced as a World Bank conditions for obtaining credit has remained an absolute condition among the Bank, the IMF and recently also aid agencies such as USAID, Britain's DFID, Germany's GTZ and the EU. The high prices of the facilities and high tariff on calls have made these services unaffordable by the poor.

Regulatory weaknesses underscore most failed attempts at infrastructure reform and privatization in Africa. Under pressure from multilateral institutions, many African countries hastily adopted regulatory templates from developed countries. These models were rarely adapted to the political and institutional features prevalent in these economies including lack of checks and balances, limited technical expertise, weak auditing, accounting and tax systems, and widespread corruption and regulatory capture (Jerome, 2004a). As a result, such efforts have had limited successes or failed woefully. Lessons from the past decade indicate the importance of planning for credible and efficient regulation, including its economic content and institutional architecture prior to reform (Willig, 1999). There is growing consensus around the key design features for a modern regulatory agency. The main features of effective regulation of privatized utilities are coherence, independence, accountability, predictability, transparency and capacity (Noll, 2000 and Stern and Holder, 1999). Moreover, they need to be adapted to fit the country peculiarities.

An examination of the distributional effects of infrastructure reform is essential if the policy is to have a place in a poverty reduction strategy. As with other policies, the impact of privatization needs to be assessed in its economic, historical and social contexts. If policies are to be poverty focused they need to be reconsidered at a fundamental level rather than rehashed changing just the language to recognize the needs of the poor. Blanket privatization needs to be abandoned in favour of a case-by-case approach where the overall objective (such as universal service delivery for example) is the starting point. From this point, alternative options can be considered and evaluated. Privatization is just one possible option. Public sector reform and corporatisation are others. Such approaches may be far better suited to meeting the needs of the poor especially in “water” where the public often view low-cost water as a right and not privilege.

Even when privatization must proceed, several measures must be taken to improve the chances that poor households will benefit from reform. Estache, Gómez-Lobo, and Leipziger (2001) offer some suggestions about how infrastructure privatization can benefit poor households. Chief among these is promoting competition where possible such as vertical and horizontal separation, elimination of exclusivity clauses in contracts and laws and the development of a regulatory culture that promotes competition. Careful attention must be paid to the design of investment and quality targets especially in a concession contract in such a way the poor are protected. The connection targets must specify the geographical area or type of consumers to be reached except tariffs are sufficiently high so that it is profitable to serve poorer households. Essentially what is needed is political commitment to doing the right thing. Privatization is no substitute for responsible policy on redistribution.

There are some important examples of privatization transactions that have been consciously designed with the interests of the poor in mind. They offer important lessons for countries aiming to privatize in a socially sensitive manner. First, the expansion of access for the poor must be made a central objective of the privatization programme. The Bolivian government, for example, consciously chose to award the concession contract for water and sewerage services in La Paz and El Alto to the private operator willing to make the largest number of new connections in low-income neighborhoods. The winning bidder was contractually obliged to connect 72,000 families to piped water and 38,000 families to sewerage over a five-year period. The second lesson is to use the privatization process itself as a means of financing the expansion of access for the poor. In Guatemala, the total net proceeds of the sale of the two national electricity distribution utilities some \$110 million in all are being used to finance an ambitious rural electrification program. The program aims to electrify 280,000 homes and has already reached more than 60,000 families.

The private sector is often willing to provide services to unprofitable communities, as long as some financial incentive is provided by the state. In Chile, Guatemala, Peru, and Colombia, capital grants have been competitively allocated to the private operator willing to provide (unprofitable) rural services at the lowest subsidy cost to the government. These programs have succeeded in bringing public telephone services to some 19,000

rural communities. Moreover, every dollar of public subsidy has leveraged at least two dollars of private investment. Social policies can also be introduced to protect the poorest from tariff increases necessitated by privatization. In Chile, water tariffs had to be doubled to pave the way for private participation. To mitigate the impact, the government introduced a targeted subsidy scheme to ensure that no family spent more than 5 percent of its budget on water bills. Eligibility for the subsidy is determined on the basis of a household interview that reviews a broad range of socioeconomic factors. Although the subsidy scheme costs the Chilean government about \$40 million per year, this is less than half of the \$100 million of state subsidy to the sector before the reforms.

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