

# The prospects for local private investment in Tanzania's rural electrification

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## Abstract

The aim of this paper is to investigate whether local investors are capable of establishing and managing power sector enterprises in Tanzania. The paper then examines the extent to which this capability could be harnessed to enhance rural electrification especially of the poor. The data used were obtained from interviews of power sector stakeholders. Three major conclusions arise from the findings. First, it seems that substantial local ownership is possible in small power enterprises but is limited in the larger ones. Second, available evidence suggests that the terms and conditions of local financial institutions are major constraining factors on the ability of local investors to mobilise finance locally. Third, it appears that, on the overall, technical, managerial and professional capabilities needed to set up, operate and manage Independent Power Production (IPP) and Independent Power Distribution (IPD) enterprises exist locally. © 2002 Elsevier Science Ltd. All rights reserved.

*Keywords:* Power sector reforms; Local participation; Tanzania

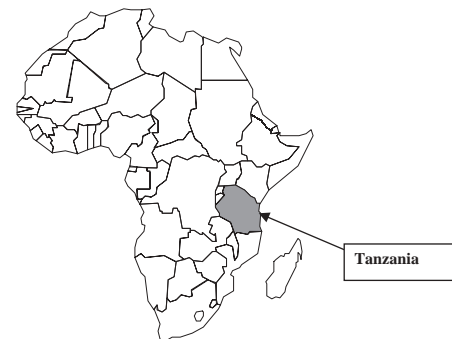
## 1. Introduction

This paper investigates local private investment and capabilities in the Tanzanian power sector. (*See Country Profile.*) The paper is based on the underlying assumption that, socially and politically sustainable strategies for attracting foreign private investment should simultaneously invoke a deliberate strategy of involving local people in power projects. This would create a local constituency to support and sustain the reforms; otherwise the reforms could be reversed in the future (Karekezi and Kimani, 2001; AFREPREN, 2001a). This begs the question: does local capability to undertake power sector investments exist? This basic question is the subject for investigation in this paper.

The data for the investigation were obtained from personal interviews with managers of existing power enterprises, selected financial institutions, relevant training institutions and private telecommunications media companies. The interviews were carried out using structured questionnaires whereby managers were requested to answer both objective and perceptual questions. The questions were intended to capture

directly or indirectly the extent and potential for local, financial, technical and managerial capabilities in power enterprises.

Brief Country Profile: Tanzania



Tanzania: Selected Indicators

<b>Population (million):</b>	32.5 (2000)
<b>Area (km<sup>2</sup>):</b>	945,000
<b>Capital City:</b>	Dar-es-Salaam
<b>GDP Growth Rate (%):</b>	1.9 (1999)
<b>GNP per Capita (US\$):</b>	260 (1999)
<b>Official Exchange Rate:</b>	TShs. 936.00 = 1 US\$ (January 2002)
<b>Economic Activities:</b>	Mining, agriculture, commerce, construction, tourism
<b>Energy Sources:</b>	Hydro, coal, natural gas, biomass, imported petroleum
<b>Installed Capacity (MW):</b>	655 (1998)
<b>Electricity Consumption per Capita (kWh):</b>	62.04 (1998)
<b>Electricity Generation (GWh):</b>	2,164 (1998)
<b>System Losses (%):</b>	11.7 (1998)

Sources: World Bank (2001); Business in Africa (2001); AFREPREN (2001); Africa Today (2001)

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Private participation in power projects is part of broader power sector reforms that are taking place all over the world today. Experience in several countries has shown that there is a somewhat logical sequence of steps if a country is willing to pursue the whole power sector reform agenda (Albouy, 1999, p. 1; Bacon, 1999, p. 3). First, the state company must be *corporatised and commercialised*. Next, a *law* permitting the envisaged reforms must be passed. Then, *arms-length regulation* must be implemented. After that the state enterprise should be *unbundled* (restructured through Vertical and Horizontal separation). *Private* participation could then be allowed, perhaps initially starting with greenfield investment and finally, existing assets should be privatised.

However, there is no one fixed way or format on how to conduct power sector reforms. This will to some extent be determined by the country-specific problem triggering the need for change. The five steps in the framework should be thought of as an overall approach to reforming rather than a rigid set of rules to be followed in their totality or in the same order in each country. The steps simply provide a convenient way of ensuring that important issues are not easily ignored in a reform exercise (Marandu, 1998).

In order to appreciate the significance of these global reforms to Tanzania, it is helpful to put the Tanzanian power sector in context. The early power sector in the country consisted of small, privately owned companies. In 1964, 3 years after independence, the Government decided to nationalise the power supply industry into one company known as Tanganyika Electricity Supply Company (TANESCO). The aim was to correct private sector inability to increase access to electricity to the majority of the population. The company remained a national utility until recently when a series of factors began to exert pressure for changing the status quo. Some of these factors include the dissatisfaction with current performance and inability by the government to finance further investment in the sector. Whereas market failure justified intervention by the government in the

past, now it is government failure justifying the role of markets.

The remainder of this introductory section presents, in a nutshell, an evaluation of the Tanzanian power sector performance and reforms, which provides the context for the issues discussed in this paper. It should be of interest to the reader not familiar with the country's power sector.

### 1.1. Technical performance indicators

Table 1 displays some technical and financial performance indicators for the sole utility, TANESCO. It shows that the access to electricity, which was about 8% of the population in 1990, declined to around 7% in 1999. Rural electrification levels are much lower, estimated at less than 2%. One major explanation for this decline is that after the 1995 election the government pursued a tight monetary discipline, which reduced disposable income, leading to low housing construction and thus fewer connections.

On the other hand, the number of customers per employee ratio has improved by about two times from 27 in 1990 to 53 in 1998 (Katyega, 2001b). The improvement in this ratio can be explained by the fact that TANESCO decided to freeze employment since 1995.

System losses are normally classified into technical or non-technical losses. Technical losses are caused by a number of factors including energy consumed by auxiliary equipment, system overload, poorly designed system, poor load management, lack of preventive maintenance and delays in system up-grade. The data shows that system losses which were as high as 28% in 1993, declined to around 12% in 1998. The improvement is due to the system rehabilitation undertaken between 1993 and 1997 and measures taken by the utility to fight against non-technical losses. Non-technical losses arise from poor electricity billing, non-payment by customers and power stealing. Although data on non-technical losses is not immediately

Table 1  
Performance of the public power utility TANESCO (1990–1999)

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Technical performance indicators										
Electrification rates (%)	7.9	9.7	17.5	11.1	13.1	14.8	12.7	7.3	5.3	7
Number of customers/employee	27.1	31.0	33.0	33.0	35.0	35.0	37.1	55	53	43.8
System losses (%)/year	19.1	20	22.5	28	19.4	14	9.5	11.25	11.7	N/A
Financial performance indicators										
Profit/loss (billion Tsh)	1.8	1.0	–10.9	–12.3	–6.6	–26.6	–3.7	–3.1	N/A	N/A
Debt collection period (days)	203	249	271	216	259	256	284	315	N/A	N/A

Source: Katyega (1999), AFREPREN (2001b, 2001c), Katyega et al. (1998), Marandu (2000).

N/A = not available.

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