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South Africa

An Assessment of Municipal Environmental Services and Infrastructure

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EXECUTIVE SUMMARY

Introduction. Since the April 1994 elections, the new South African government has embarked on an effort to completely restructure policies, institutions, and programs toward an integrated and sustainable program that will result in improvements in the standard of living of the vast majority of the population.

With the advent of U.S. bilateral support for the new government and its Reconstruction and Development Programme, USAID is currently developing two new projects in the shelter and urban services sectors. One focusses on the provision of basic environmental infrastructure, namely, electricity, potable water, and sanitary sewerage to residential areas now unserved or under-served.

The Legacy of Apartheid. Urban management was predicated on residential segregation and the notion that towns and cities could be compartmentalized into separate units presided over by separate local governments, with their own fiscal, legal, administrative and representative systems. This gave rise to the ill-conceived and ineffective black local authority system. Residential segregation and the unequal delivery of housing meant that land, infrastructure services, transport and community facilities were provided in a way that severely disadvantaged Africans. Services were only minimally provided in overcrowded, dense communities, and were particularly difficult and costly in communities of low-density, sprawling character. Some urbanized parts of the country are not provided municipal services in any formal way. The impact of these deficiencies on family health is extremely serious.

Urban Authority in Transition. White municipalities have generally functioned on the basis of cost recovery, multi-year planing, and balanced budgets, or even surpluses for urban infrastructure. In contrast, governance in traditionally African urban areas show many of the problems of developing countries -- limited management capacity, limited authority, poor collections for services, non-payment for services, poor maintenance, etc. -- often made worse by the absence of local authority with the requisite human and financial resources.

Local government is going through phases: (a) the negotiation phase during which new local government structures had to be agreed upon (or could have been imposed) and proclaimed by the Provincial Governments of the pre-interim Transitional Councils; (b) the first transition or the pre-interim phase which culminates with local government elections in November 1995; (c) the interim phase will extend from after the local government elections until the new Constitution is in place; and (d) new local government structures will probably arise as a result of the new Constitution.

Transitional Metropolitan Councils are forms of local government, new in South Africa, which will administer large and complex urban areas with multiple, pre-existing local authorities. **Transitional Local Councils** are appointed for the areas of merged, pre-existing local authorities. **Service Councils** replace functions of the former Regional Service Councils in those areas which do not fall within a TMC. **Transitional Rural Councils** are new structures for those areas which were formerly classified as provincial non-urban local governments, that is, smaller towns in rural areas.

The Provision of Urban Infrastructure. The extent of the need for urban infrastructure increases with urbanization and population growth. The gap representing unserved units decreases as the needs are met by development of new services. The demand for new services consists of the given backlog plus households which will form in the future. The availability of electricity, potable water, and sanitary sewerage in urban and metropolitan areas is high for whites and Asians and, to a lesser extent, coloreds. Availability for Africans is substantially lower.

Colored and African consumers in urban and metropolitan areas spend proportionately more of their total household expenditure on energy and water than do white consumers. African urban consumers spend proportionately less than whites on electricity, reflecting the lower availability of electricity and the higher expenditure (absolute and proportional) on other energy. In addition, there is an unequal impact on the delivery of services, and on the consequences of non-delivery, on women.

Policy Considerations and Institutions. Policy in urban infrastructure and the environment is formulated by a variety of public institutions. The primary function of some of these institutions is to provide the actual services, but they still must formulate policies regarding priorities, standards, timing, and some financial parameters, e.g., Water Boards, Local Authorities, Eskom, Provincial Governments. On the other hand, some institutions have only a policy or planning role, with no responsibility for the provision of services, e.g., Forums such as NELF, associations of local authorities and professionals.

Community Participation. Implementation of infrastructure projects must take into account the community, its institutional structures, skills, and economic activity, as well as the engineering and project finance. Community empowerment takes place through skills transfer, organizational development, and economic growth. USAID's Community and Urban Services Support Project experience in housing is an implementation model to be considered for municipal infrastructure: (a) there must be a representative system by which the community can make decisions; (b) the relationship between the actors in the development process must be equal; (c) roles and responsibilities, including for payment and maintenance, must be clearly understood.

Because the RDP depends on democracy and social stability in local communities, the management of institutional change and the delivery of municipal services must occur simultaneously. Local government is the key institution in the delivery of basic services, extending local control, managing local economic development and redistributing public resources. The Masakhane Campaign supports local government's obligation to restore and upgrade services where they have collapsed and extend services to new areas.

Infrastructure Finance. One of the major constraints to more complete distribution of utilities to the former black townships and rural areas is the daunting cost of construction -- estimated as high as R37 billion -- compressed into the seven year goal of the RDP. Another constraint is the non-viable economics of providing a high-cost service to those unable or unwilling to pay for it. There are also major institutional problems confronting service providers, foremost of which is the current lack of a viable municipal bond market.

Underfunding bulk utilities is another source of problems in meeting the country's utility needs. Consequent cross subsidization has the effect of continued separation of the cost of capital construction from the required tariff to recover that cost. These and other factors have contributed to the slow growth of utility extension in those residential areas where income has been below the national norm. The reasons are partially financial, but also a direct result of apartheid policies. Metropolitan government, in whatever form it takes, will resolve many central planning and service delivery issues for the former black townships.

Infrastructure Costs. The total cost for water, sanitation, and electricity for the full service option in metropolitan and other urban areas is estimated at just under R11 billion. There is wide variation in the cost of providing the three basic services, with sanitation generally being the most costly in metropolitan and other urban areas. The utility portion of local government expenditures represents an enormous cost to local rate payers/residents.

Subsidies. South Africa's governmental budgeting system is plagued by *ad hoc* financing. There has been no clear and consistent method for transferring funds downward from the central government. Subsidies have been distributed based on short-term needs and to make up deficits at the local level.

Fee Structures. Fees, or tariffs, represent a very large portion of local revenues. In some municipalities, the sale of electricity makes up 60 percent of revenue. As local governments consolidate and put former white and former black township water customers on the same rate base, particular attention will be given to providing affordable service to poorer areas, with higher blocks making up losses in the below-cost block.

Tariffs for utility services should be structured so that total collections cover the assigned costs. Political and social issues, however, have combined with poverty to create a culture of non-payment of utility bills.

Municipal Surplus. Although municipal trading services are segregated from other services in the setting of rates and in budgeting and operation, "profits" from them may legitimately be transferred into municipal general fund budgets and expended for general purposes.

Management. As important as cross-subsidization is to the short-term goals of the RDP in providing utility services to deprived areas, the organization of government and the assignment of roles to various levels and agencies are important to the viability of those utilities in the long term. Economies of scale will dictate new arrangements for the provision and distribution of electric power.

Finance Mechanisms. The creation and expansion of infrastructure can be financed through (a) cross-subsidization to the limit that the public will bear; (b) an increased reliance on the use of bonded debt as the municipal bond market re-emerges; (c) the use of broad-based national taxes and savings to the extent that they can be attainable politically; and (d) to a lesser extent, the use of special programs and foreign donations as "kick start" mechanisms. Central to the success of these approaches will be the development of a culture of payment that sustains itself and grows as the deprived portion of the population develops economically and yields very significant tax and fee revenue.

In recent years, municipalities have substituted a combination of short-term financial vehicles for the most reliable and financially justifiable method, namely the issuance of municipal bonds based upon the good faith and credit of the municipality. The merits of local borrowing for capital costs include (a) the spreading out of costs of "lumpy" investments; (b) the equity of paying for long term improvements by those who consume the improvements over long periods of time; and (c) the predictability of repayment based on user fees rather than changeable national subsidies.

Municipal debt financing should be reinstated. Problems lie in the uneven nature of local economies across the country, and in the assumption that those individual municipalities which will suffer from an inability to secure credit through normal channels will have to access the bond market indirectly. Such indirect financing will take the form of collective borrowing and/or continued national government involvement, including loan guarantees and pass-through financing.

It would be unwise to vest too much infrastructure financial power, including the power to incur debt, in the central government. Not only would this be counter to the current trend toward fiscal autonomy and accountability at the lowest feasible levels of governance, but the assignment of bond issuance authority at only the national and provincial levels would prevent the formation of strong decentralized institutions.

Once infrastructure backlogs are eliminated, utilities are likely to operate on a full cost recovery basis. Recognizing the need for continuing subsidies, grants, and special programs

for the short term, there is potentially a large source of funds in the form of efficiencies to be found both in improved management and in systematic planning at the local level.

Environmental Considerations. Environmental considerations are mainly the responsibility of the Department of Environmental Affairs and Tourism. Though it has been responsible for drafting the Integrated Environmental Management procedures and proposed regulations, it is mostly involved in preparing policy. Much of the implementation of an environmental policy is the responsibility of other central government departments, such as Water Affairs and Forestry, or of local authorities in the provision of services to residents. In general, the capacity and experience of local authorities to interpret and enforce the processes of IEM are severely limited by the lack of regulations and a shortage of experienced personnel.

Environmental Impact. The development of urban infrastructure affects the social environment (urbanization, increased population concentration, community facilities, viability of economic activities, positive and negative impacts on community and individual health), and the physical environment (increase in stormwater run-off and risk of flooding, development in flood plains, visual amenity, increased mobility derived from improved transport routes). Where electricity is introduced as a competitor to fuelwood, issues of the social environment must be considered: fuelwood is usually collected by women, often requiring groups to make long journeys on foot; where fuelwood is gathered, not purchased, conversion to electricity is accompanied by a change in responsibility for energy supply from the gatherer to participants in the cash economy, thus changing social roles in the family.

Positive impacts include improved health through easy access to clean water, reduction of exposure to faecal infection cycle, reduction in the household environment of combustion fuels which by giving off water vapor and particulates increase the incidence of TB, and increased safety compared with the use of combustible fuels.

Employment Generation. Besides training and job opportunities provided by investment in labor-intensive public works projects, there are significant effects on job creation in small enterprises after the installation of infrastructure services. Direct economic gains from water supply and sanitation investments include (a) increased efficiency and production of the water supply itself; (b) increased production of all goods and services; (c) increased private investment, triggered in part by public investment in water supply; and (d) increased job creation and employment.

Indirect economic benefits may include improved health conditions, and time saving by individuals and households which releases the time of household members for more productive activities. Electrification brings even more benefits, specifically to manufacturing, retail, and services.

PREFACE

This assessment was undertaken over the course of two visits to South Africa from January to March 1995. The report is intended to assist the U. S. Agency for International Development (USAID) and the Government of South Africa in understanding the problems in the provision of urban infrastructure services to a vast underserved population. USAID will utilize the assessment as it formulates its strategy in support of the government's Reconstruction and Development Program.

The assessment team was comprised of John Miller, urban development specialist who led the team; Alan Edmond, former town manager who provided municipal management expertise; Richard Tomlinson, South African urban development expert; Trevor Gaunt, South African infrastructure specialist; and Canzi Lisa, South African community development expert. The South African team members contributed well beyond their professional expertise: they were invaluable interpreters of the realities of the country.

Ms. Carleene Dei, USAID Housing and Urban Development Officer, provided overall guidance and direction to the team's work, as well as information, sources, and insights into the issues. Ms. Dei and Mr. Jeremy Hagger, who directs USAID's Housing and Urban Development Division in South Africa, provided a vision of the assessment's utility and value in public policy formulation.

Office space and support staff -- kindly provided in Johannesburg by Richard Tomlinson's office, Trevor Gaunt's office (HKS Law Gibbs), and Abt's own office -- is greatly appreciated.

Grateful acknowledgement is also made to those South Africans from the public and private sector, and from local, provincial, and national institutions who shared information and ideas in Johannesburg, Pretoria, Cape Town, Kimberley, Port Elizabeth, and Nelspruit. They are identified in Annex 2.

The assessment, of course, reflects the authors' views and interpretations, which we trust will contribute to policy development, project implementation, and ultimately the provision of potable water, sanitary sewerage, and electricity services to those South Africans without.

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ACRONYMS AND CURRENCY

AMEU	Association of Municipal Electricity Undertakings
ANC	African National Congress
BLA	Black Local Authority
BSE(HG)	Basic Shelter and Environment (Housing Guaranty)
CBO	Community Based Organization
CSIR	Council for Scientific and Industrial Research
CUSSP	Community and Urban Services Support Project
DBSA	Development Bank of Southern Africa
DMEA	Department of Mineral and Energy Affairs
DTI	Department of Trade and Industry
DWAF	Department of Water Affairs and Forestry
EDI	Electricity Distribution Industry (usually referring only to the utilities, but sometimes used in a sense of including the suppliers of goods and services to the utilities)
EIA	Environmental Impact Assessment
EMP	Environmental Management Plan
ESI	Electricity Supply Industry
GDP	Gross Domestic Product
HUDD	Housing and Urban Development Division (USAID)
IDCC	International Development Coordinating Committee
IDT	Independent Development Trust

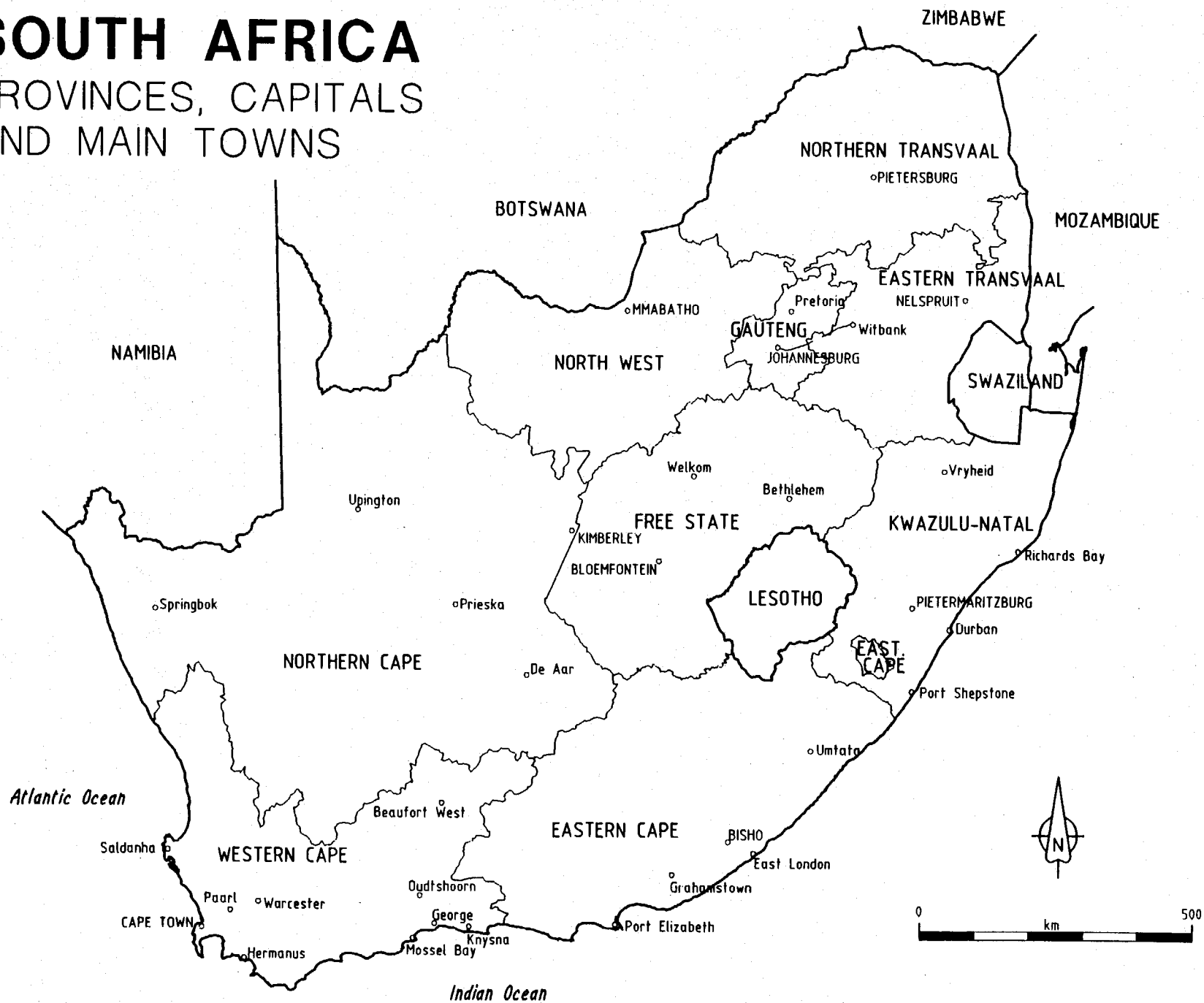
IEM	Integrated Environmental Management
INLOGOV	Institute for Local Governance and Development
JSB	Joint Services Board
LGTA	Local Government Transition Act of 1993
LWC	Local Water Committee
MEC	Member of the Executive Council
NECB	National Electrical Control Board
NELF	National Electrification Forum
NGO	Non-Governmental Organization
PAC	Pan African Congress
RDP	Reconstruction and Development Programme
RSA	Republic of South Africa
RSC	Regional Services Council
SALDRU	South African Labor and Development Research Unit
SANCO	South African National Civic Organization
SGT	Self Governing Territory
SMME	Small, Medium, and Micro-enterprise
TBVC	Transkei, Bophuthatswana, Venda, Ciskei (former "independent" states)
TLC	Transitional Local Council
TMC	Transitional Metropolitan Council
TMSS	Transitional Metropolitan Substructure
TRC	Transitional Rural Council

UIIP	Urban Infrastructure Investment Planning
UME	United Municipal Executive
USAID	U.S. Agency for International Development Mission in Pretoria
WLA	White Local Authority

R3.5 (South African Rand) equals US\$1.00 (March 1995).

SOUTH AFRICA

PROVINCES, CAPITALS AND MAIN TOWNS



CHAPTER 1 INTRODUCTION

1.1 BACKGROUND

Since mid-1992, USAID/South Africa has been implementing the Shelter and Urban Development Support (SUDS) Project, which is seeking to (a) promote community-based planning, development, and management of housing and urban development projects; (b) mobilize long and short-term credit for such projects; and (c) formulate policies and develop institutions that will sustain such programs.

SUDS targets Africans¹ as ultimate beneficiaries, with a particular focus on those living in below-standard housing. It has operated primarily through the provision of grants and contracts to Non-Governmental Organizations (NGOs) and Community Based Organizations (CBOs).

USAID/South Africa is also implementing a \$75 million Private Sector Housing Guaranty loan to Nedcor. The loan is targeted to households earning between R1,500 and R2,500 per month.

Since the April 1994 elections, the new South African government has embarked on an effort to completely restructure policies, institutions, and programs toward an integrated and sustainable program that will result in improvements in the standard of living of the vast majority of the population.

With the advent of U.S. bilateral support for the new government, and its Reconstruction and Development Programme (RDP), USAID is currently developing two new projects in the shelter and urban services sectors. The first is the Basic Shelter and Environmental (Housing Guaranty), BSE (HG), involving the provision of \$75 million in guaranteed, untied foreign exchange loans to support environmentally sound basic shelter solutions and related community infrastructure in below-median income residential communities.

USAID's second project -- for which this assessment is prepared -- will focus on the provision of basic environmental infrastructure, namely, electricity, potable water, and sanitary sewerage to residential areas now unserved or under-served. This assessment is intended to provide USAID's Housing and Urban Development Division (HUDD) with the analytic base upon which to proceed with project design.

¹ Throughout this report, the term African is used to mean black South Africans.

The picture presented here is a national one; no one region, province, or locality is of greater importance than another although visits to and experiences in the Provinces of Gauteng, Eastern Transvaal, Northern Cape, Eastern Cape, and Western Cape inform the analysis. It is abundantly clear that adequate infrastructure will only be provided throughout the country when a new and responsible local government structure is in place.

1.2 FOCUS OF THE ASSESSMENT

The kinds of urban services that often are provided to residences by public authorities, private regulated utility companies, or other private companies, include water distribution, water-borne sewerage systems or pit latrines, electricity, solid waste disposal, storm drainage, roads, sidewalks, and natural gas. This assessment is focusing on those services of most critical need to many households in urbanized parts of South Africa.²

- **Potable Water:** For the most part, this means the distribution of treated water to a tap inside the residence or within the private yard, although in some cases it may involve only a standpipe that is shared by two or more families. A local authority or a regulated company purchases water on a bulk basis and distributes it to areas of sufficient density to justify the capital expense. Residents pay a one-time connection fee and monthly charges based on consumption. In many parts of the country, the supply of bulk water is a serious problem, and hence a significant constraint to increased distribution.
- **Sewerage:** The provision of a high-standard, water-borne sewerage system prevalent in traditionally white, urbanized areas is not the ultimate objective of the government.³ Instead, the immediate priority is to provide sanitation services to all which meet basic health and functional requirements including the protection of the quality of both surface and underground water. Higher levels of service can be achieved as incomes rise. Even the provision of a pit latrine, however, represents a major improvement to systems currently used by some of the target population. The

² South Africa's population is predominantly African (74 percent), followed by white (14 percent), colored (9 percent), and Asian (3 percent). The country is over 60 percent urbanized, though the most populous group is the least urbanized. About 90 percent of white and Asian populations live in urban areas and about 80 percent of the colored population live in urban areas, while only about 50 percent of Africans live in urban areas.

³ According to the November 1994 White Paper on water supply and sanitation policy, "conventional waterborne sanitation is in most cases not a realistic, viable and achievable minimum service standard in the short term due to its cost."

Ventilated Improved Pit (VIP) toilet is an appropriate and adequate basic level of sanitation service. In any case, residents will be expected to pay for the service.

- **Electricity:** The distribution of electricity to each home that is not now served is a major objective of the government. Each home would have a reliable supply of adequate electricity. There would be a charge for the initial connection, and charges based on metered consumption either paid in advance (prepayment system using a magnetic card, "smart card" or coded number) or after consumption (conventional metering and billing).⁴

The white municipalities generally function on the basis of cost recovery, multi-year planning, and balanced budgets, or even surpluses for urban infrastructure. Governance in traditionally African urban areas show many of the problems of developing countries -- limited management capacity, limited authority, poor collections for services, non-payment for services, poor maintenance, etc. -- often made worse by the absence of local authority with the requisite human and financial resources.

Some urbanized parts of the country are not provided municipal services in any formal way. Families tap illegally into water systems, or more often carry water by hand from natural sources (e.g., rivers, reservoirs) to their residence. Families devise their own unsanitary systems to dispose of human waste. In the case of power, some families utilize gasoline generators, some heat stoves with charcoal and light homes with kerosene or candles, and some of course do without any source of power.

The impact of these deficiencies on family health is extremely serious. During 1992-1993 South Africa's child mortality rate, before the age of five years, was 72, per 1,000 live births, which was double that of a middle-income country and a world average of 34.

Some 53 percent of South African children between two and five years of age suffered from stunting between 1980 and 1990, compared to an average of 39 percent in Africa as a whole.

The annual incidence of tuberculosis in South Africa (including the ten homelands) was 250 per 100,000 people in 1990, compared to an average of 220 per 100,000 in Africa. The South African figure was ten times that of developed countries.

In 1991 the life expectancy in South Africa was 63 years, which was the lowest for the category of upper-middle-income economies including countries such as Botswana, Mexico and South Korea.

⁴ Service deficiencies caused by rent and service boycotts are discussed in Chapter 4.

It is those areas that have no formal services or inadequate services that are the target of government efforts, and the focus of this assessment. Chapter 2 continues with a discussion of how government apartheid policies left the country with such dramatically opposed standards of infrastructure services. The variety of existing, transitional, and future governmental authorities is presented in Chapter 3.

Chapter 4 paints a picture of urban infrastructure provision. The relevant institutions and their respective policies and programs are discussed in Chapter 5. As the subject of urban infrastructure provision is a very topical one in South Africa, several proposals are in the public dialogue, including those that offer important roles to CBOs in their implementation; these implementation models are discussed in Chapter 6.

Regardless of the institutional arrangements or technical methods used to provide infrastructure, how it will be financed remains a difficult, and politically sensitive, issue. Indeed, the financial restrictions are likely to influence the objectives, standards and programs adopted. Chapter 7 discusses the possibilities and their implications.

Providing water, sewerage, and electricity where none now exist will change the natural and social environment. Chapter 8 reviews the government's capacity to address environmental impact.

The potential consequences of electricity provision on family incomes and employment generation is discussed in Chapter 9.

CHAPTER 2 THE LEGACY OF APARTHEID

Apartheid policy and legislation have had significant impact on urban areas. While apartheid legislation has been repealed, numerous consequences remain. The ensuing text highlights the dominant trends.

The legacy of urban apartheid is revealed in what is known as the "apartheid city". The apartheid city had five features, one of which was (and remains) the scarcity of services in (formerly) African areas.

The first and most obvious feature of the apartheid city was residential segregation. Residential segregation was implemented through:

- racial zoning;
- forced removal of Africans, coloreds and Asians to distant townships;⁵
- the consignment of Africans to informal settlements just outside of "homeland" borders; and
- low incomes among Africans which made private housing inaccessible.

The second feature, coupled with residential segregation, was economic segregation. There were numerous prohibitions on economic development in black townships. The underlying philosophy was that Africans were in the cities to serve in white industries, on the mines, and other similar employment. Thus, if an African wished to start a business, he/she was free to do so, but only in his/her homeland (a presumed home, since most urban Africans were born and raised in the cities). Commercial development likewise took place in white parts of town. As a consequence, black townships lack an economic and fiscal base.⁶

The third feature of the apartheid city was an urban management system predicated on residential segregation and the notion that towns and cities could be compartmentalized into

⁵ There were 3.5 million instances of population removal. Some people were moved more than once.

⁶ A further consequence of the lack of local employment and the impractical location of housing and informal settlements relative to commerce, industry and services is that 80 percent of Africans spend two and one-half hours a day, and about ten percent of their household income, commuting an average of 37 kilometers each way; subsidized transport represents a significant (R1.9 billion in 1992) burden on the state budget.

separate units presided over by separate local governments, with their own fiscal, legal, administrative and representative systems. This gave rise to the ill-conceived and ineffective black local authority system.

The fourth feature, again associated with residential segregation, was a housing delivery system that subsidized the whites and to a lesser degree coloreds and Asians, and relegated the African majority to either homelessness or rental status with no security of tenure, and extreme overcrowding arising from shortages of accommodation.

The fifth feature was the collection of distinct implications that urban apartheid had for urban services:

- Residential segregation and the unequal delivery of housing meant that land, infrastructure services, transport and community facilities were provided in a way that severely disadvantaged Africans.
- Restrictions on the movement of Africans into urban areas did not prevent African urbanization so much as displace it. Despite influx controls and pass laws, squatter settlements developed apace in the form of backyard shacks in formal townships and extensive squatter areas (especially when located just outside homeland borders). African urbanization was already occurring at levels comparable to other countries at similar levels of development. Services were only minimally provided in overcrowded, dense communities, and were particularly difficult and costly in communities of low-density, sprawling character.
- The lack of an economic base means that townships have little access to capital to pay for services.
- The black local authorities suffered from management constraints and were limited in their ability to maintain services. The problem was accentuated by services boycotts which to a significant degree were directed at the local authorities.

CHAPTER 3 URBAN AUTHORITY IN TRANSITION

3.1 LOW-INCOME SETTLEMENTS

To place the changing structure of urban authorities in the broader context of South Africa's urbanization, it is important to understand the nature of urban settlements.

- It is estimated that seven million people⁷ live in spontaneous informal housing which develop outside the framework of formal township planning and development (for example, Phola Park and Winterveld). Spontaneous informal housing areas often lack services although some may have been installed as part of an upgrading program (for example, Besters Camp). Spontaneous informal housing can further be divided into three categories:
 - backyard shacks -- informal structures erected on residential properties in formal legal townships;
 - free-standing informal settlements -- clusters of informal structures located on tracts of land within formal townships, in buffer zones between townships, on undeveloped farm land, on tribal land close to urban centers, and on vacant land in formerly white, colored or Asian areas; and
 - scattered informal settlements -- small clusters of informal structures often found in locales such as unused mine holdings. These settlements typically are impermanent and the residents highly mobile.
- Site and service schemes are legally established townships offering legal tenure and some services. Levels of service vary from the very basic (pit latrines and communal water points) to the more sophisticated (water-borne sewerage, piped water to individual stands).

⁷ Of these, approximately five million people live in and around the major metropolitan areas of Gauteng, Durban, Cape Town, Port Elizabeth, East London, and Bloemfontein. The remaining two million are found in and around Pietermaritzburg and the OFS Goldfields, in smaller cities and towns such as Witbank/Middleburg and Kroonstad, and dense settlements such as Bushbuckridge in the Eastern Transvaal. Other sources suggest that the percentage of Africans living in shacks range from 15 to 31 percent of the total African population or, from six to twelve million people.

Not all informally housed individuals are "squatters." Squatters refer to individuals illegally occupying (for shelter purposes) land and/or buildings belonging to other owners.⁸

3.2 AN URBAN HIERARCHY

In earlier years the government, The Urban Foundation and other institutions developed their own versions of an urban hierarchy based on criteria such as population size and services. More attentive researchers then adjusted the hierarchy to account for South Africa's complexities. The outcome was the traditional table which more or less mirrored the economic output and diversity of the various levels in the hierarchy. However, due to The Urban Foundation's use of secondary cities and publication in this respect, secondary cities are now a part of common research semantics. One is therefore more current if one refers to metropolitan areas, secondary cities, and medium and small towns. Before identifying the centers, it is probably best to review the complexities.

First, at every level in the urban hierarchy there may be people located in what used to be a homeland. Thus, The Urban Foundation refers to metropolitan areas and also to homeland metropolitan areas, not implying that there are metropolises in the homelands, but rather that a significant portion of the homeland population is functionally a part of some metropolitan area. The same is true for large and small towns.

Second, one means different things by rural towns in the homelands and those in the formerly white areas. The origin of towns in the former homelands lies in their role as administrative centers. A "non-farm" settlement system has been imposed upon an agricultural base of minimal productivity and such settlements have little economic rationale.

The reverse is true in the case of rural towns found in commercial agricultural areas where development was closely linked to agricultural success (until forced removals displaced African populations located in these towns).

Third, there are "dense" or "closer" settlements in the former homelands which are based on large agglomerations of people whose main source of livelihood may be migrant remittances, pensions, and incomes arising from daily or weekly commuting to distant cities. The significant population of these centers coupled with their lack of agricultural activities has led to them being viewed as urban also.

Fourth, The Urban Foundation defines secondary cities as those centers having a population between 50,000 and 500,000 persons, economies which are dependent on a limited number

⁸ In fact, in many other countries the legalization of such land use -- the granting of tenure -- has often been the framework under which infrastructure services are provided.

of economic sectors, an intermediate position in the urban hierarchy, and important regional and rural linkages. These cities have a key role in promoting regional economic development.

3.3 METROPOLITAN AREAS AND SECONDARY CITIES

In light of the above, metropolitan areas are viewed as those with a population greater than 500,000 persons. These are the Witwatersrand, Cape Town, Durban, Pretoria, Port Elizabeth, Pietermaritzburg, East London, and Bloemfontein. Note that in practice the definition of metropolitan will probably be determined by the centers which acquire Transitional Metropolitan Councils.

The 1991 population of South Africa's urban areas is presented in Figure 3.1 below. This data is subject to difficulties arising from where one draws boundaries. Since Africans were excluded from living in "white" parts of towns under apartheid, but were nonetheless functionally urbanized, estimates of city size that are based on magisterial districts may considerably understate a city's functional population. This is especially so with respect to the cities in Natal which are marked with * as they have a large adjacent population in KwaZulu. For example, Pietermaritzburg's population is more correctly rendered as 505,600 and Newcastle's as 212,000.

Figure 3.1 Population of Largest Cities, 1991

Urban Area	Population
Witwatersrand	4,671,585
Central Witwatersrand	2,135,195
East Rand	1,885,478
West Rand	650,912
Durban Functional Region*	957,417
Metropolitan Cape Town	3,100,583
Pretoria	1,262,583
Port Elizabeth	853,204
East London	622,893
Pietersburg	366,884
Welkom Goldfields	345,797
Klerksdorp	321,474
Witbank/Middleburg	313,296
Bloemfontein*	300,153
Pietermaritzburg*	228,552
Potchefstroom	185,543
Kimberley	167,063
Mmabatho	168,742
Nelspruit	61,913
Newcastle*	53,581

Source: The Urban Foundation, 1994.

The secondary cities identified by The Urban Foundation on the basis of their definition of functional urbanization include the Welkom Goldfields, East London, Klerksdorp, Newcastle, Potchefstroom, Kimberley, Witbank/Middleburg, Mmabatho, Pietersburg, Ladysmith, Richard's Bay/Empangeni, Paarl, Secunda, Nelspruit, Kroonstad, George, King William's Town, Rustenburg, Worcester, Umtata, Stellenbosch, Ermelo, and Grahamstown. Other urban areas with populations less than 50,000 are either medium or small towns.

3.4 LOCAL GOVERNMENT TRANSITION

Phases of Local Government Transition.⁹ The various changes which local government has been undergoing should be viewed as phases of local government transition, which are determined by both the Local Government Transition Act of 1993, and Chapter 10 of the Constitution. In broad terms, the phases can be identified as follows:

- the old local government structures which existed under the previous dispensation;
- the negotiation phase during which new local government structures had to be agreed upon (or could have been imposed) and proclaimed by the Provincial Governments of the pre-interim Transitional Councils;
- the first transition or the pre-interim phase which culminates with the Local Government elections in November 1995; (during this phase, Demarcation Boards play an advisory role to the Member of the Executive Council, MEC, often referred to as minister;
- the interim phase will extend from after the Local Government elections until the new Constitution is in place; it remains to be seen, however, to what extent structures agreed upon during the previous phase will remain unchanged, or whether new structures will be introduced; and
- finally, new local government structures will probably arise as a result of the new Constitution.

Definitions. The extent to which the new structures will replace the old structures is complicated by the fact that a new structure does not simply replace an old one. A Transitional Metropolitan Council, for example, does not so much replace a former city council and its area of jurisdiction as it replaces a myriad of former structures and/or their areas of jurisdiction including any of the following: Regional Service Council areas (Joint Services Board areas in the case of KwaZulu/Natal), former white local authorities,

⁹ The complex transition process discussed here is presented in Figure 3.2 at the end of this chapter.

provincial non-urban local governments, former black local authorities, provincial proclamation areas such as Orange Farm, and former local authorities in the former self-governing territories. In some cases, traditional authorities may also fall within a Transitional Metropolitan Council area; however, this is a very contentious issue at the moment, especially in KwaZulu/Natal and Eastern Cape/former Transkei. Definitions of these structures follow.

- **Transitional Metropolitan Councils (TMCs).** TMCs are forms of local government, new in South Africa, which must administer large and complex urban areas with multiple pre-existing local authorities. Those which have been promulgated thus far, or are about to be formally established, are Greater Pretoria, Greater Johannesburg, NorthEast Rand (Midrand/Kempton Park/Ivory Park/Tembisa, etc.), Vaal Metro, Greater Durban and Greater Cape Town. These proclamations cover the pre-interim period, and it is quite possible that the boundaries could change before the local government elections.

Each TMC must have two or more internal TMSSs (Transitional Metropolitan Substructures), which like the TMCs will be elected in November but are presently appointed.

There are two very different models for TMSSs:

- a grouping of pre-existing local authorities which merge into a TMSS but retain the character of previous boundaries, such as the grouping of Akasia and Soshanguve into the Northern Substructure of Greater Pretoria; and
- a redrawing of internal boundaries with less respect for pre-existing local authority boundaries, as in Greater Johannesburg which has seen the extinction of most previous boundaries in toto.

Both models are feasible in terms of the Local Government Transition Act and each model may have applicability in different circumstances. For example, it may be that the only way to improve services in very large township complexes (Soweto, Khayalitsha) is by keeping them intact and giving the responsibility for financing servicing to the TMC rather than a substructure. On the other hand, the correct mix of old townships and old white areas in divided substructures (like Central and Northern in Pretoria) may be a sound option for service improvement under different circumstances.

In determining the relationship and power division which exist between the TMC and the Transitional Metropolitan Substructures, one of two approaches can be adopted, a hard top or a soft top approach.

- **Hard top.** In this case the power remains to a large extent with the central TMC with the TMSSs being delegated the more mundane duties and powers. The Greater Johannesburg TMC has adopted such an approach during the pre-interim phase, thus important and essentially political decisions will be made at the central point and the TMSSs will in turn be responsible for the more administrative issues and also fulfill an advisory role.¹⁰ For example, while the city councils of Sandton and Randburg previously made their own decisions regarding town planning issues within their areas of jurisdiction, under the new structure, such decisions are most likely to be made centrally by the TMC. In the case of the Greater Johannesburg TMC, the hard top option has occurred in conjunction with the redefining of former local authority boundaries. This is not a prerequisite, however; in the case of the Cape Town TMC, boundaries have also been redefined but here a soft top approach has been adopted.
- **Soft top.** In this case the power is not predominantly centrally based with the TMC. Instead, the TMSSs to a large extent retain their powers and operate almost independently within the broader TMC structure. The Greater Pretoria TMC has adopted this approach with its three TMSSs (Northern Pretoria, Central Pretoria, and Southern Pretoria) retaining a significant degree of their former powers and duties.

The soft top approach is by far the favored option with five of the six metropolitan councils opting for this route, the exception being the Greater Johannesburg TMC. It remains to be seen, however, whether the situation in Greater Johannesburg will change and whether significant powers will be delegated to the TMSSs.

The boundaries, both outer and internal, of TMCs proclaimed for the pre-interim phase may well change for the elections after recommendations by the Demarcation Boards have been considered by provincial governments.

A percentage of the members of TMCs will be elected directly and a percentage will be appointed by the members of TMSSs. The TMSS members will be directly elected, some by wards and some at-large by proportional representation.

Where TMCs are created, the old Regional Services Council (RSC, Joint Services Board in KwaZulu/Natal) powers are absorbed by the new TMCs. Where TMCs are not created, the old RSC powers go to Service Councils established to replace the RSCs. Service provision in areas without TMCs is likely to depend heavily on investment by the new Service Councils.

- **Transitional Local Councils (TLCs).** TLCs are the key building block of transitional local government. In the pre-interim phase they are appointed by negotiating

¹⁰ See Annex 3 for a review of the options for service provision by the Johannesburg TMC.

fora for the areas of merged, pre-existing local authorities; for the interim phase (until a new national constitution), they will be elected. As with TMCs the boundaries proclaimed for the pre-interim may change for the election; there may even be cases where several TLCs may merge to form new TMCs.

TLCs will be members of service councils which will collect the old RSC taxation (payroll and turnover levies), and which presumably will have unlimited ability to redistribute such revenue from its wealthier source areas into poorly serviced parts of their areas of jurisdiction.

- **Service Council (SC).** Service Councils replace functions of the former RSCs in those areas which in terms of the new structures do not fall within a TMC. Thus, Service Councils do not replace RSCs but merely the residual RSC areas which do not fall within a TMC.
- **Transitional Rural Council (TRC).** TRCs are new structures for those areas which were formerly classified as provincial non-urban local governments, that is, smaller towns in rural areas. Transitional Rural Councils to a large extent replace those areas which were managed by either Peri-Urban (Transvaal) or the Cape.

3.5 IMPLICATIONS OF THE TRANSITION

The institutions responsible for the delivery of municipal services, as well as the boundaries within which services are to be provided, are being reshaped during the current transition period from formerly separate Asian, black, colored, and white local authorities to integrated local and metropolitan governments. The transition is a complex process, and as it proceeds through various phases, it involves integrating diverse local authorities, some of which were located within former homelands. In order to anticipate the implications of these changes for the delivery of municipal services, several aspects must be understood:

- the role of demarcation boards in redefining local and metropolitan borders;
- pending changes in those boundaries and the implications for service delivery;
- the role of transitional local and metropolitan councils; and
- how the local government transition will affect informal and squatter settlements that straddle municipal borders and/or are located within the boundaries of former homelands.

Demarcation Boards. The Local Government Transition Act of 1993 (LGTA) provides that the boundaries and powers of local governments must be determined by the Premier of each of the nine provinces, which in practice will mostly mean by the provincial Member of the Executive Council charged with local government executive powers.¹¹

The LGTA provides for the appointment of a Demarcation Board for each province. It obliges the Premier/MEC to take into account the Board's recommendations in deciding on the boundaries of local governments (and perhaps their powers) for the interim phase.

In some provinces the provincial governments have also instructed the Boards to advise on boundaries for the pre-interim phase. A prominent example is the referral of the boundaries of the Cape Town metropolitan area to the Western Cape Demarcation Board. By contrast, in other provinces, including Gauteng, the Demarcation Boards have not played a role in arriving at pre-interim boundaries.¹² All Demarcation Boards must, however, advise the provincial governments on the interim phase.

The Boards were appointed by outgoing administrators and similar officials before 27 April 1994, under the management of the local government sub-council of the Transitional Executive Council at the national level. In general they consist of members whose names were put forward by government and extra-parliamentary groups in that period. Their chairpeople vary but in some significant cases are *ancien regime* appointees.

The Boards which are functioning are generally operating by way of inviting submissions and holding hearings, rather than by way of generating their own proposals (though there will be more exceptions in the near future). The timetable is tight; for example, in Gauteng the recommendations on election boundaries for local government were to be finalized by the end of March 1995.

In making their recommendations to the MECs, the Boards are obliged to consider the eight criteria for local government boundaries listed in Schedule 6 of the LGTA. Where metropolitan areas are concerned they also must consider the definition of a metropolitan area provided in Section 1 of the Act.

The Phases. The LGTA, which resulted from negotiations closely linked to the Kempton Park constitutional negotiations, sets out three phases for local government transition:

¹¹ Local government is one of the competencies of provincial government according to Schedule 6 of the Interim Constitution, but the general outlines of local government powers and functions are shaped also by Chapter 10 of that Constitution.

¹² The exception in Gauteng is the demarcation of Service Councils to replace the former Regional Services Councils for areas falling outside Transitional Metropolitan Council boundaries.

- the **negotiation** phase, in which all existing local authorities had to join with other interested parties to negotiate the establishment of "transitional councils" for the next (pre-interim) phase (this phase is more or less complete in most parts of the country).
- the **pre-interim** phase, during which the transitional councils negotiated previously would function and, among other things, prepare for local government elections. The transitional councils of this phase were to be appointed by the parties to negotiation, with 50 percent of seats designated for those who had previously participated in local government (the "statutory" group of local government councilors and participating political organizations) and 50 percent designated for those who had not (civic associations, political organizations which had previously boycotted local government, etc. -- the "non-statutory" group). Most potential transitional councils are now in place, typically including previous black and white local authority areas in their jurisdiction.
- the **interim** phase -- that is, pending the adoption of a new national Constitution -- which would begin with the election of transitional councils with powers and for areas determined by the provincial governments as mentioned above.

Pending Changes. It follows from the previous section that almost all local government boundaries must change between the negotiation phase and the pre-interim phase. This happens largely through the merging of previously separated black and white local authorities -- and where it has not happened this way, a Demarcation Board will be sure that it does, in terms of the criteria for demarcation mentioned in Schedule 6 of the LGTA.

It also follows that boundaries defined for the pre-interim phase could *either* stay the same *or* change, for the election of the interim councils which are due to occur in November 1995.

There are three major types of local government boundary situations:

- (1) smaller centers in which one old black local authority must merge with one old white local authority, complicated to usually limited degrees by the existence of old colored and Asian group areas administered by the old white authority. In most cases, this means putting back together what the establishment of Bantu Affairs Administration Board in 1971 rent asunder; but newer additions to "African" areas have sometimes been administered by old provincial authorities. In any event, the usual result is a merged, single Transitional Local Council (TLC).
- (2) larger and more complex centers in which a number of old white and black local authorities existed adjacent or in close proximity to one another -- with more complications of the types mentioned above. In these cases choices must be made

about which local areas belong together¹³, and also about whether or not the merged local authorities constitute metropolitan areas with Transitional Metropolitan Councils (TMCs), with internal divisions into Transitional Metropolitan Substructures.

(3) a different type of complexity exists where distinctly urban, old white local authorities with their associated group areas and black townships, exist in close proximity to townships¹⁴ and informal settlements located in former Self-Governing Territories (SGTs) such as Lebowa. Especially where the settlements concerned include places under the jurisdiction of tribal authorities, the merging of administrations poses difficult problems. Those problems are most severe in KwaZulu/Natal where the possibility of holding elections is being delayed by disputes about whether such mergers should take place or not. The most extreme example of this third type, with metropolitan overtones, is Durban.

Implications for the Delivery of Services. The implications of change in local government for service provision tend to vary among these three types of boundary situations.

In Type 1, the implications are fewest, though in the cases where the pre-existing white local authorities had substantial resources, the possibility exists of significantly improved delivery of services in the old black areas. Unfortunately, in many of the roughly 400 towns in South Africa, the financial situation of the old white local authorities is not strong, and only relative administrative efficiency, economy of scale and similar matters may assist directly in service provision in the old townships.

In Type 2, which includes many potential metropolitan areas (Cape Town, practically the whole of Gauteng, Port Elizabeth/Uitenhage, and a few others), the ways in which boundaries are placed will have a profound bearing on the abilities of the resulting local authorities to deliver some services. For example, rejoining Boksburg and Vosloorus will result in a financially strong entity, while rejoining Benoni and Daveyton together with New Etwatwa will place that potential TLC (real for the pre-interim) in a weak position, at least with regard to the installation of new infrastructure. However, the new boundaries might assist in maintenance of existing services. The question which arises is whether the ability of local authorities to deliver services will be enhanced by merging more of them together, or whether mergers will spread equal misery.

A further possibility under Type 2 is that where Transitional Metropolitan Councils are *not* formed, it is possible for Service Councils to continue as replacements of previous Regional

¹³ For example, is it adequate to link Vosloorus and Boksburg into a TLC, or should there be a larger TLC including also Katlehong and Germiston; or should there be a larger TMC with substructures?

¹⁴ Here meaning mainly areas which originated as public housing schemes.

Services Councils, and to continue -- or under a new elected regime, enhance -- the transfer of revenue from wealthier to less well off areas in order to fund better services.

In many cases under Type 2, however, water and sanitation in bulk are already supplied by various quasi Non Government Organizations and other agencies like the Umgeni Water Board and the East Rand Sewage Treatment Company; the question of service provision is more one of local infrastructure and maintenance than of bulk supply. In general an outcome which could have negative consequences for local reticulation and maintenance would be the erection of boundaries separating wealthier and economically fast-developing suburbs from poorer, economically more stagnant and often African, more township-cum-informal areas of settlement.

Where TMCs are created, one problem will be the establishment of effective administration, especially where radically new substructures are set up with little experience in their areas of service.

Since many local authorities in South Africa have long relied on electricity sales to support other servicing activities, but have charged far less in white areas than in adjacent black ones, one of the key concerns of local government transition must be whether formulae can be evolved and charges collected to allow not only maintenance and extension of electricity services, but also their use to cross-subsidize other forms of infrastructure investment.

In Type 3 situations, it is very difficult to predict the impact of boundary changes on servicing, except that the incorporation of former SGTs, informal areas, coupled with the implication of the LGTA and indeed the Constitution that local government should strive to provide good and more or less equal servicing, could burden many new transitional authorities with unaffordable tasks in the absence of substantial provincial and national subsidy.

Effect on Informal and Squatter Settlements. From the point of view of old types of local government, informal settlements in South Africa fall into a number of different categories. There are, for example, those which are ruled by tribal authorities, those run directly by old SGT governments, those run directly by old provincial governments, and those governed as part of old black local authorities as well as part of old white local authorities. There are also some informal settlements which fall outside the effective jurisdiction of any local authorities, including the provincial/regional governments acting as local authorities. Some informal settlements also straddle the boundaries of all of these types of administration.

The LGTA seeks to bring all the parts of particular urban areas under more or less united administration -- the old "one city, one tax base" call. To do so requires bringing informal settlements into these new units. However, it is unlikely that there will be complete success in all cases, since

- there are political obstacles (e.g., in KwaZulu/Natal);
- there are on occasion provincial boundaries which divide informal settlements (as in the areas north of Pretoria divided between North West and Gauteng); unless recent amendments to the LGTA are implemented very quickly the result will be divided local authority; unless TMCs come into being, it is quite likely that some informal settlements will continue to be divided between new TLCs.

However, many informal settlements face a more positive future since they will be incorporated into TLC and TMC areas and may look forward to some servicing.¹⁵

Relevance of the Departments of Constitutional Development and the Provincial Administrations. As the foregoing sections have made clear, the provincial administrations are central to the definition and creation of new local governments in South Africa. New local governments are presumably heavily dependent on long-serving bureaucrats to perform. In some cases provincial administrations have hired consultants to facilitate processes such as the work of the Demarcation Boards.

The Department of Constitutional Development is trying to accelerate the process of formation of TLCs and TMCs. Its concern is to be sure that local government elections take place as soon as practically possible. Its role in provinces which are not acting expeditiously may be greater than in others. The national ministry may also have a role to play in enforcing the provisions of the Constitution after the elections if the provincial administrations cannot do so; Chapter 10 of the Constitution establishes many requirements for the conduct of local government affairs.

Implications of the Former Self-Governing Territory Borders, Governments, and Service Suppliers.

Borders: In some cases the former SGT borders have become provincial boundaries. Where there are artificial separations across these boundaries between settlements, such as in some old Transvaal cases (north of Pretoria, between Eastern and Northern Transvaal, etc.), the ability of local government to supply services will perhaps in the short term be impaired

Where such borders exist within provinces, the chief implication is dealt with in terms of Type 3 above. That is, the LGTA promotes the unification of all types of local authorities in

¹⁵ The limit to this observation may lie in the likelihood that many informal settlement residents will not register or vote in the local government elections in November; they will be discouraged by the requirement for an actual street address.

urban cases, though this goal may not be achieved. The service provision implications will probably be negative for those areas excluded.¹⁶

Without those complexities, it is also the case that within the former SGTs and in some cases outside them, one of the greatest challenges to service delivery will be in "semi-urban" settlements which fall under tribal authority administration. The political struggles now occurring (e.g., between elements of the South African National Civic Organization, SANCO, and some chiefs in the Transkei) may negatively affect short and medium term service provision.

Governments: The provincial governments which must incorporate old SGT governments confront real difficulties in developing consistent administrative capacity to implement local government transition. However, this does not necessarily mean that the old SGT bureaucracies will interfere with the process; little direct impact can be expected except where strongly established SGT government intersects with powerful local interests.¹⁷

Service Suppliers: Service suppliers which sometimes existed at artificial levels in the SGTs must be very carefully merged into the new local government structure. Those servicing arrangements, though partial, tended to be effective where introduced.

¹⁶ However, since there is no absolute reason as to why a continuing tribal authority should not be able to deliver services -- some have, and other may do so in the future -- one should be circumspect here.

¹⁷ All provinces except Gauteng and Western Cape are in this category, though the degree of the challenge varies from the extremes of Eastern Cape and Northern Transvaal to the lesser problems of Northern Cape and Orange Free State.

Figure 3.2 Local Government Transition

Old Structures (until April 1994)	Negotiation Phase (1994 - 1995)	First Transition Phase (Pre-interim) Emerging Structures (April 1994 - November 1995)	Interim Phase (November 1995 - April 1999)	New Structures (New Constitution) (April 1999 and beyond)
<p>RSCs established in terms of the Regional Services Council Act of 1985; e.g.: East Rand Regional Services Council.</p> <hr/> <p>Joint Services Boards (JSBs, only in KwaZulu/Natal), established in terms of the KwaZulu and Natal Joint Services Council Act of 1990.</p> <hr/> <p>White Local Authorities established in terms of the Provincial Ordinances and the Provincial Government Act of 1961; e.g., Johannesburg, Pretoria, Nelspruit.</p> <hr/> <p>Provincial Non-Urban Local Government. Cape: DTU; e.g., Transvaal: Peri-Urban (Local Government Affairs Council) and LACs; e.g., Malelane.</p> <hr/> <p>Black Local Authorities established in terms of the Black Local Authorities Act of 1983; e.g., Daveyton.</p> <hr/> <p>Provincial Proclamation Areas; e.g., Orange Farm and Motherwell.</p> <hr/> <p>Local Authorities in old self-governing territories, established in terms of Proclamation R293 of 1961 and the Self-governing Territory Legislation; e.g., Kanyamazane in Kangwane</p> <hr/> <p>Traditional Authorities (Tribal Areas).</p>	<p>Two forms of negotiation have taken place:</p> <ul style="list-style-type: none"> • Forums which existed prior to the LGT Act and which have consequently been recognized. • Forums imposed by the LGT Act in which all local governments had to participate. <p>Negotiation must result in agreement of the next phase (form which the local government would take); otherwise could be imposed by Provincial Government.</p> <p>Exception if the Local Council is already non-racial.</p> <p>Decisions taken during this phase are formalized by way of proclamation by the Provincial Governments of the pre-interim Transitional Councils.</p>	<p>Transitional Metropolitan Councils (TMCs): Proclaimed TMCs include Greater Johannesburg, Greater Pretoria, North East Rand and the Vaal Metro. Non-proclaimed TMCs include Cape Town and Greater Durban.</p> <p>TMCs can take on two forms, namely, hard or soft top approach. Greater Pretoria has adopted the soft top approach with the TMC consisting of three Transitional Metropolitan Sub-Structures (TMSSs) namely, Pretoria, Atteridgeville and Mamelodi, all of which have retained their power.</p> <p>Greater Johannesburg has adopted the hard top approach.</p> <p>Transitional Local Councils (TLCs) which consist of former White Local Authorities and former Black Local Authorities.</p> <p>Service Councils (SCs) cover residual RSC areas which do not fall within a TMC; e.g., Eastern Service Council, which has replaced the East Rand RSC, and the Western Service Council which has replaced the West Rand RSC.</p> <p>Transitional Rural Councils (TRCs) in rural areas such as Magaliesburg and Pienaar's River.</p>	<p>It remains to be seen whether after the Local Government elections in November 1995, the structures established during the pre-interim phase will remain as they are or whether they will change.</p> <p>This decision rests with the executive committee of each province which is headed by the premier of the province.</p> <p>The Demarcation Boards will advise the MEC on the boundaries.</p>	<p>The new Constitution may make provisions for new and different forms of local government structures.</p>

CHAPTER 4

THE PROVISION OF URBAN INFRASTRUCTURE

This chapter examines the scope (categories) of the water, sewerage and electricity services provided as urban infrastructure, the extent to which they have been provided and the need for further facilities, and the process of providing the urban infrastructure.

4.1 DATA SOURCES

The data on urban infrastructure is uncertain.¹⁸ It is confused by:

(a) the variety of authorities for which it is prepared, creating different classifications such as by region. The Urban Foundation data is recommended over DBSA data because of the Foundation's superior treatment of functional urbanization. That is, the government used to define the urban population to include only those living within declared urban areas and also only those who had a "pass" -- Africans who were allowed to live in the city. In addition, Africans living across a homeland border that abutted a white town were not included within the town's population.

(b) the definition of urban (including metropolitan) and non-urban (peri-urban and rural). These criteria excluded people who were functionally urbanized and who commuted to jobs in town. Critics of apartheid argued that this represented the displaced urbanization of people who would otherwise be urban (even if living in squatter settlements). The Urban Foundation made the transition from formal to functional earlier and more reliably than other data sources.

It is now accepted that South Africa's urban areas should be defined in functional terms which include all townships, suburbs and settlements that are part of an area's functional region. For example, East London's population includes Duncan Village and Mdantsane. This is manifest in the manner in which Transitional Local Council and Transitional Metropolitan Council borders are currently being defined.

¹⁸ The consequence of these data uncertainties is that various organizations, most prominently The Urban Foundation and the Development Bank of Southern Africa, undertook their own demographic projections. The detailed projections undertaken by Professor Charles Simkins on behalf of the Foundation may be regarded as good, but do not provide information about the level of service provided. For service levels, figures are drawn from SALDRU. It is noted that it is not always possible to reconcile the data for electricity with that for water and sewerage, or data for the same service from different sources.

(c) the preparation in different years or based on different census enumerations. Ordinarily, one would think that the Census would provide the best demographic and urbanization data; this is not the case in South Africa. For example, the 1985 Census had to be adjusted by the Council for Scientific and Industrial Research and the Bureau for Market Research before it was credited with reasonable accuracy. The 1991 Census is valid for small towns and rural areas in the "non-homeland" South Africa, and for whites. It is inaccurate in the cities and large townships. The context for this inaccuracy was the boycott against the Census which made large parts of the country inaccessible for census takers and forced reliance on, for example, aerial photographs.

(d) the difficulty in counting squatter settlements (see Section 3.1).

4.2 CLASSIFICATION OF SERVICE

Urban infrastructure services in South Africa have been classified into three levels, associated with responsibility for provision and funding.

Bulk services are provided generally by national, provincial or, occasionally, local government departments or by statutory organizations such as Eskom or Water Boards.

Link services are usually provided by a regional or local authority to connect a bulk service to the reticulated service in the township. Link services are funded by the providing authority, although the source of funds may be the township developer or a government fund, e.g., National Housing Commission.

Internal services are the reticulation or distribution within the township, connecting each service point/consumer.

The scope of electricity, water and sewerage service at each of the levels of bulk, link and internal is indicated in Figure 4.1.

Figure 4.1 Bulk, Link and Internal Services

	Electricity	Water	Sewerage
Bulk	Transmission lines and input substation.	Dams, bulk pipelines, water treatment works.	Treatment works and outfalls.
Link	Medium voltage (11 or 22 kV) feeder to boundary or into main distribution nodes.	Reservoirs, piping into the reticulation system.	Pumping stations and rising mains. Major outfall gravity sewers.
Internal	Medium and low (400/230 V) voltage distribution to the consumer's boundary or meter. May include street lighting.	The reticulation system, including standpipes in public domain, and connections to consumers, including water meter.	Waterborne sewerage: connection sewers and collectors. On site sanitation: latrines and forms of digesters.

4.3 LEVELS OF SERVICE

The "Guidelines for the Provision of Engineering Services and Amenities in Township Development" (widely known as the Red Book) include a matrix of Levels of Service and an indication of the approximate costs associated with each level. The levels of service for water, sewerage and electricity are summarized in Figure 4.2.

Figure 4.2 Levels of Service Matrix (Red Book)

Service	1	2	3	4	5
Water	Standpipe within 250m	1 standpipe/20 sites, within 150m	Metered standpipe per site	Metered connection for in-house supply	not applicable
Sewerage	VIP latrine (Ventilated improved pit)	Anaerobic digester	Septic tank and soakaway	Waterborne sewerage connection, 750 l/day	Waterborne sewerage connection, 1,000 l/day
Electricity	Highmast lighting only	Overhead bare MV and insulated LV, pole-mounted transformers	Overhead insulated MV and LV, pole-mounted transformers	Underground MV, overhead insulated LV, ground mounted transformers	Underground MV and LV, ground mounted transformers

There are alternatives to the levels of service detailed in the Red Book matrix. For example, the Water and Sanitation 2000 report identified the links between the water and sanitation systems, and the National Electrification Forum (NELF) identified the possibility of adopting three levels of electrification service -- minimal, restricted and unrestricted. These result in the following alternative Levels of Service matrix.

Figure 4.3 Alternative Levels of Service Matrix

	Basic	Intermediate	Full
Water and Sewerage	Standpipe and VIP latrine	Yard tap and Aqua Privy	House connection and waterborne sewerage
Electricity	Minimum "interim" supply restricted to 5 or 10 A	Metered supply, restricted to 20 A	Metered supply, 60 A capacity

The full range of levels of service of water supply and sewage disposal are illustrated in Figures 4.4 and 4.5. They illustrate the relation between bulk and link services and the size of the community, influencing also the type and standard of the internal services.

Consideration also must be given to the possibility of alternative services, particularly in the case of electricity. Electricity can be used for lighting, heating, mechanical work and electronic applications (especially entertainment). Alternative forms of energy, including fuelwood, coal, photovoltaics and diesel engines are widely used instead of network (grid) electricity. There are few, if any, alternatives to water and sewerage as functional services.

Figure 4.4 Differing Levels of Service (Water Supply)

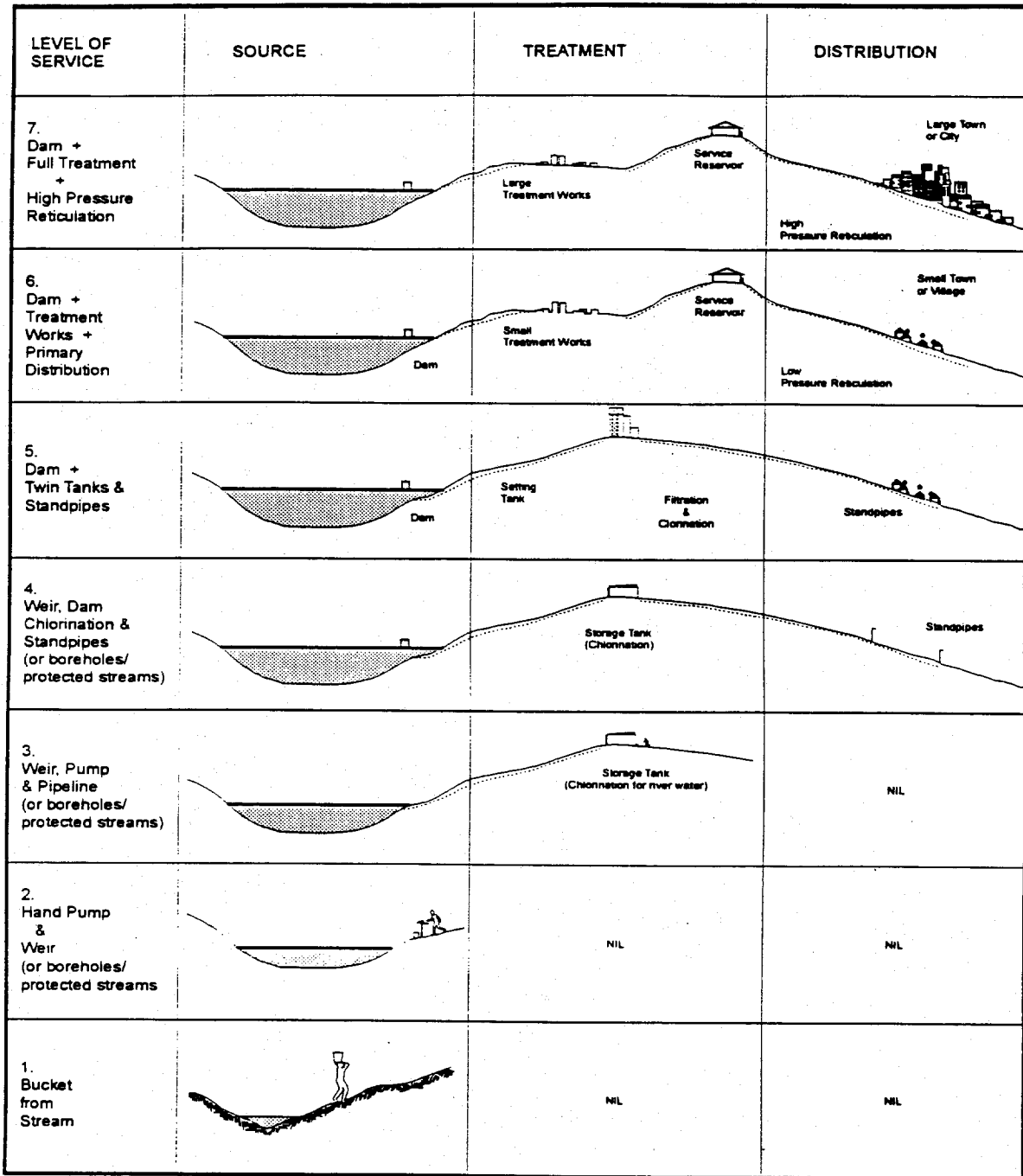
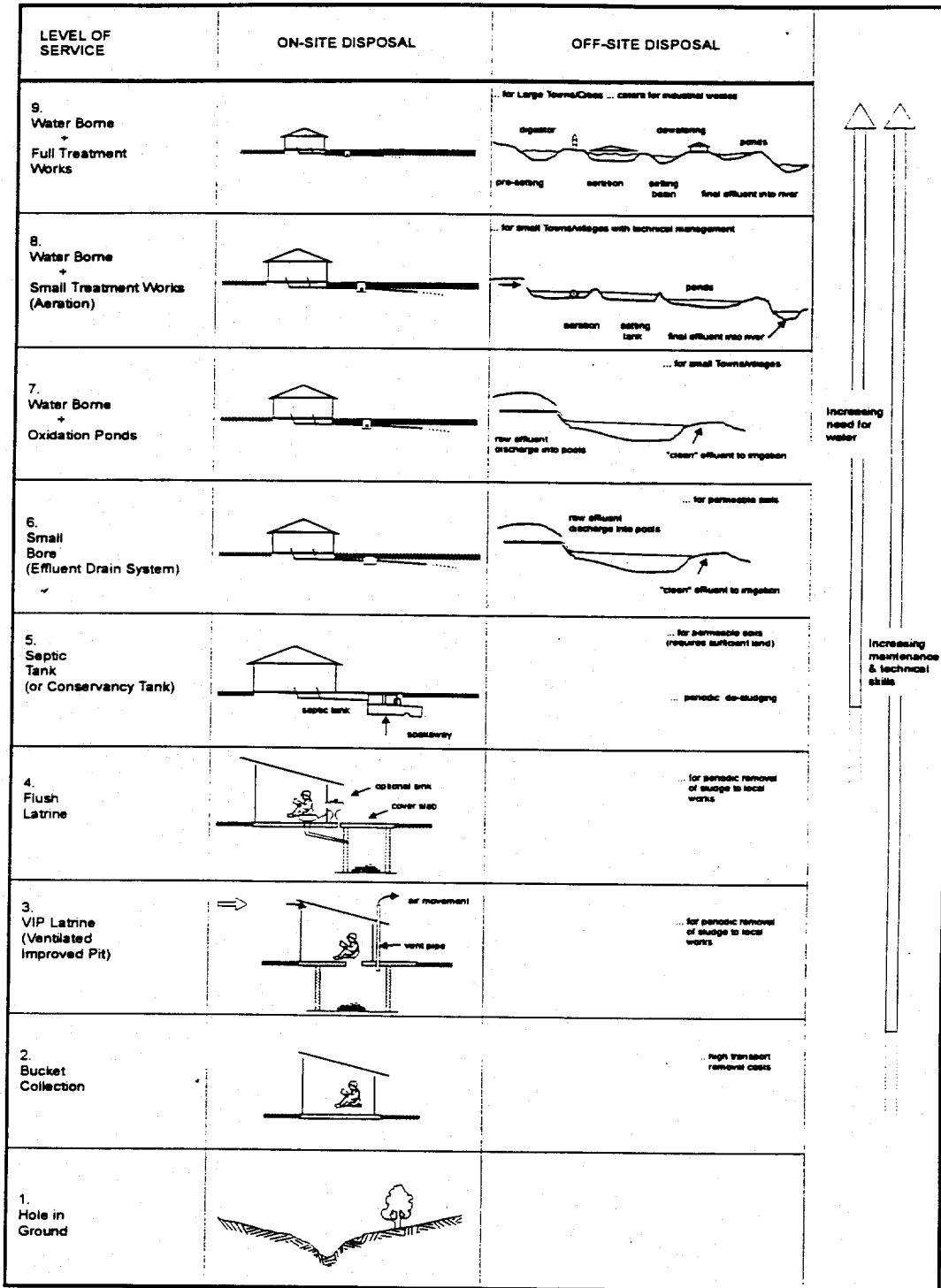


Figure 4.5 Differing Levels of Service (Sewage Disposal)



4.4 EXTENT OF PROVISION AND DEMAND

The extent of the need for urban infrastructure increases with urbanization and population growth. The gap representing unserviced units decreases as the needs are met by development of new services. The demand for new services consists of the given backlog plus households which will form in the future.

Where available, data is presented also for rural infrastructure, to allow comparison with undifferentiated data.

4.4.1 Size of Urban Sector

As indicated in Chapter 2, an important aspect of the distribution of services in urban areas is the racial bias arising from previous policies. As a basis for comparisons, the distribution of households by province and race, as derived from the SALDRU survey, is presented in Figure 4.6.

Figure 4.6 Urban and Metropolitan Households, by Province and Race

		African	Colored	Asian	White	Total
Eastern Cape	Urban	119,500	14,700		72,000	206,200
	Metropolitan	98,500	36,300		13,800	147,500
Eastern Transvaal	Urban	137,700	800	1,900	58,200	196,600
Orange Free State	Urban	310,800	16,900		77,400	405,200
Gauteng	Urban	201,700	0	0	0	200,700
	Metropolitan	854,000	49,200	34,600	682,000	1,618,900
KwaZulu/Natal	Urban	164,500	23,100	129,500	49,000	363,400
	Metropolitan	95,300	18,100	58,600	52,600	224,700
North West	Urban	54,300			32,700	86,900
Northern Cape	Urban	24,600	87,300			111,900
Northern Transvaal	Urban	54,300			57,200	111,500
Western Cape	Urban	11,800	119,700		84,300	215,700
	Metropolitan	127,400	249,200	1,800	243,600	620,900
Total	Urban	1,079 200	262,600	131,400	430,800	1,904,000
	Metropolitan	1,175 300	352,800	95,000	992,000	2,615,100

Source: SALDRU

4.4.2 Electricity

The availability of electricity in urban areas in South Africa is indicated in Figure 4.7. Rural availability of electricity is also indicated for comparison, and illustrates the much lower levels of service provision in the rural areas.¹⁹

Figure 4.7 Electrification by Province (December 1994)

Region	Urban			Rural		
	Population (000)	Households (000)	Percent Electrified	Population (000)	Households (000)	Percent Electrified
Eastern Cape	2,143	489	60.8	4,478	885	2.4
Eastern Transvaal	868	192	57.4	2,049	386	26.0
Gauteng	6,664	1,651	75.3	308	67	55.5
KwaZulu/Natal	3,293	791	75.2	5,188	973	9.8
North West	1,069	226	67.5	2,394	471	12.0
Northern Cape	543	118	71.9	258	63	36.8
Northern Transvaal	470	116	71.4	4,657	925	16.1
Orange Free State	1,485	352	65.6	1,268	236	26.2
Western Cape	3,179	781	85.9	558	133	48.0
TOTAL	19,714	4,716	-	21,158	4,139	-

Source: Eskom, Electricity Distribution in South Africa

¹⁹ The Asian population in South Africa is concentrated mainly in Kwazulu/Natal. Many of the services are provided to similar levels of those for whites in Kwazulu/Natal. In the other regions the size of the Asian communities is generally so small as to be statistically insignificant. Therefore, in the following tables, the data for Asians has been omitted.

It is evident from this table that the percentage levels of urban electrification are lowest in the Eastern Transvaal and Eastern Cape.

According to the SALDRU survey, as shown on Figure 4.8 below, the percentage availability of grid electricity in urban and metropolitan areas is high for whites and Asians and, to a lesser extent, coloreds. Availability for Africans is substantially lower.

Figure 4.8 Percentage Availability of Electricity by Race and Location

	Metropolitan	Urban	Rural
African	66.7	42.3	25.6
Colored	95.7	75.9	71.4
Asian	100	100	100
White	100	99.6	98.5

In the early 1990s, the electricity distribution industry established a target of connecting 500,000 new consumers per year. Of this total, Eskom has responsibility for 300,000 and local authorities have responsibility for 200,000. In 1993, significant progress was made in increasing the activity levels towards reaching the target and in 1994 it was substantially achieved. Now, however, Eskom is becoming concerned that maintenance of the program at this level may be hampered by a lack of progress in new housing development. Continued development at the same pace, now incorporated into the RDP objectives, will force Eskom into unprofitable activity, incurring high costs in connecting consumers who, in the long run, simply cannot afford to pay for the electricity service.

4.4.3 Water Provision

Most water supplies in South Africa are from surface water systems. Most groundwater utilization is in small scale schemes in rural areas and in small towns in drier parts of the country.

Water provision in urban areas is predominantly piped water, the most significant categories being:

- internal or within the yard (private), and
- public standpipe, either free or paying (public).

The availability of water in these categories, by race, province and location is illustrated in Figure 4.9, as derived from the SALDRU survey.²⁰

Figure 4.9 Availability of Piped Water in Urban and Metropolitan Areas (percent of sector)

PROVINCE	LOCATION	AFRICAN		COLORED		WHITE	
		Private	Public	Private	Public	Private	Public
Eastern Cape	Urban	92.7	-	100	-	100	-
	Metropolitan	75.0	25.0	97.3	-	100	-
Eastern Transvaal	Urban	54.7	44.5	100	-	100	-
Orange Free State	Urban	47.4	52.6	100	-	100	-
Gauteng	Urban	66.0	33.0	-	-	-	-
	Metropolitan	96.3	3.3	100	-	99.9	-
KwaZulu/Natal	Urban	96.2	3.8	100	-	100	-
	Metropolitan	67.4	32.6	100	-	100	-
North West	Urban	90.6	-	-	-	93.9	-
Northern Cape	Urban	100	-	91.0	9.0	-	-
Northern Transvaal	Urban	96.8	1.6	-	-	100	-
Western Cape	Urban	63.7	18.2	94.3	5.7	100	-
	Metropolitan	66.4	33.6	99.2	0.8	100	-

4.4.4 Sewerage Provision

In urban areas, the density of settlement usually results in the adoption of flush or bucket systems of sewage disposal. Flush systems include waterborne sewerage as well as septic tanks. Most bucket systems were installed as interim measures during periods of rapid growth, intended to be replaced when funds were provided for waterborne sewerage. In practice, they continue to be used for long periods, in spite of high operating costs and social disadvantages, because of the high capital cost of replacement or upgrading.

²⁰ Caution: The structure of the SALDRU samples is such that data in some areas where the sample is small is statistically not significant, and hence great caution must be used in Figure 4.9 and Figure 4.10 below.

The availability of sewerage services in urban and metropolitan areas, derived from the SALDRU survey, is indicated in Figure 4.10. There are clearly discrepancies between the data from the SALDRU survey and Palmer, as evidenced particularly by the figures for the Northern Cape and Northern Transvaal.

Figure 4.10 Percentage Availability of Sewerage in Urban and Metropolitan Areas

PROVINCE	LOCATION	AFRICAN		COLORED		WHITE	
		Flush	Bucket	Flush	Bucket	Flush	Bucket
Eastern Cape	Urban	57.1	34.3	20.0	80.0	97.9	2.1
	Metropolitan	76.1	23.9	97.3	1.2	100	-
Eastern Transvaal	Urban	36.0	50.4	100	-	100	-
Orange Free State	Urban	40.3	31.9	100	-	100	-
Gauteng	Urban	51.8	16.8	-	-	-	-
	Metropolitan	88.0	2.2	96.6	1.7	100	-
KwaZulu/Natal	Urban	90.8	-	100	-	100	-
	Metropolitan	69.2	-	100	-	100	-
North West	Urban	43.4	37.7	-	-	100	-
Northern Cape	Urban	100	-	88.5	13.5	-	-
Northern Transvaal	Urban	93.5	-	-	-	100	-
Western Cape	Urban	63.6	9.1	74.6	21.3	100	-
	Metropolitan	64.7	30.3	98.4	1.2	100	-

According to Palmer, 21 percent of people living in urban areas use pit latrines, of which very few are of the VIP type; eight percent use bucket systems and 68 percent waterborne (including septic tank).

Palmer defines adequate sanitation to include waterborne, septic tank, VIP latrines and intermediate systems. The percentage of the population without adequate sanitation is indicated on Figure 4.11. Note that a region is defined in terms of Development Regions; this is similar but not identical to Provinces.

Figure 4.11 Percentage of Population Without Adequate Sanitation, by Province

Development Region	Percent Urban Population Without Adequate Sanitation
Western Cape	13
Northern Cape	63
Orange Free State	42
Eastern Cape	27
KwaZulu/Natal	36
Eastern Transvaal	40
Northern Transvaal	73
Gauteng	23
North West	49
TOTAL	31

Source: Palmer

4.5 HOUSEHOLD EXPENDITURE

The SALDRU survey investigated the income and expenditure characteristics of households. The data in Figure 4.12 indicates the expenditure on electricity, other energy, the total cost of energy and the expenditure on water, where this is sold and not included in rates. The expenditure on water and energy, as related to total household expenditure is also indicated.

Figure 4.12 Average Monthly Household Expenditure on Water and Energy, by Race and Location (in Rand)

	Location	Electricity	Other Energy	All Energy	Water	Total Household Expenditure	Energy and Water: Percent of Total
African	Rural	6.20	58.70	64.90	2.00	955	7.0
	Urban	12.70	40.10	52.80	2.20	1,205	4.6
	Metropolitan	19.20	28.20	47.40	0.60	1,533	3.1
Colored	Rural	20.70	20.10	40.80	0	1,561	2.6
	Urban	18.30	29.40	47.70	9.80	1,332	4.3
	Metropolitan	72.00	9.40	81.40	19.30	2,280	4.4
White	Rural	227.90	20.10	248.00	3.90	4,682	5.4
	Urban	53.80	8.30	62.10	14.80	4,189	1.8
	Metropolitan	46.20	3.90	50.10	13.20	4,986	1.3

Source: SALDRU, pages 94 and 320

Colored and African consumers in urban and metropolitan areas spend proportionately more of their total household expenditure on energy and water than do white consumers. African urban consumers spend proportionately less than whites on electricity, but this reflects the lower availability of electricity and the higher expenditure (absolute and proportional) on other energy.

Both the capital and operating costs are related to the quality and quantity of service allowed. These costs are usually reflected in the tariffs and, therefore in the cost to the household of the service. The technical standards adopted by the service supplier, including the chosen level of service, affect the household expenditure on electricity and water.

At this stage the application of tariffs for sanitation (sewerage and treatment) is not widely or uniformly applied.

4.6 GENDER CONSIDERATIONS

Gender is an important issue due to the large number of African households headed by women and related differences in household expenditure.²¹ Relevant data for African households is shown in Figures 4.13 and 4.14. It is apparent that there are a large number of female-headed households, especially in metropolitan areas, and that their average household income is substantially below the average for all households. The fact that these differences are especially pronounced in metropolitan areas suggests that any program directed at urban poverty must be alert to their needs.

Figure 4.13
Characteristics of Household Heads by Ethnic Group, Gender, and Location (percent)

	Female	Male	Absent
African			
Rural	28.0	56.5	15.5
Urban	29.7	65.1	5.1
Metropolitan	35.0	64.7	0.2
All	29.7	59.7	10.6
Asian			
Rural	-	-	-
Urban	16.7	83.3	0
Metropolitan	10.1	89.9	0
All	13.9	86.2	0
Colored			
Rural	0	97.7	2.3
Urban	30.6	63.3	6.0
Metropolitan	19.9	78.8	1.4
All	22.9	73.9	3.3
White			
Rural	8.9	91.0	0
Urban	10.8	88.8	0.5
Metropolitan	17.7	82.0	0.4
All	15.0	84.6	0.4
All			
Rural	27.1	58.1	14.9
Urban	24.6	71.5	3.8
Metropolitan	25.5	74.1	0.4
All	26.0	66.2	7.9

Source: SALDRU, 1994.

²¹ USAID has recently commissioned a study of the implications of gender on the delivery of services in South Africa.

Figure 4.14 Average African Monthly Income

Location	All African Households	Female-Headed African Households
Per household		
Rural	R955	R814
Urban	R1,205	R997
Metropolitan	R1,522	R1,277
RSA	R1,111	R954
Household per capita		
Rural	R270	R202
Urban	R412	R283
Metropolitan	R514	R384
RSA	R342	R259

Source: SALDRU, 1994.

The gender inequalities arise from:

- the concentration of the female labor force in low-paid sectors of the economy;²²
- the continued impact of the migrant labor system on rural households and the phenomenon of migrants often sustaining two households, one urban and one rural; and
- the breakdown of the family system among many African households.

It is also interesting to note from Figure 4.14 that, despite what one might expect from the migrant labor system and men who are absent in the cities and on the mines, female-headed households are most common in metropolitan areas. The implication is that social breakdown provides the primary explanation for female-headed households. It also seems that the high incidence of female-headed households in rural areas is a consequence of men who are absent in the cities.

²² For example, they are excluded from the relatively well-paid mining sector and concentrated in the poorly-paid service sector, especially domestic services.

It is in the light of such gender comparisons that it is also of interest to delve into differences between men and women in respect of their economic occupations. These differences are illustrated in Figure 4.15²³ which shows that the major sources of regular urban employment for male Africans are the manufacturing, construction, wholesale and retail, and transport and communications sectors. The major sources of regular female employment are domestic services, educational services, medical services, and manufacturing. The exclusion of women from the unionized, relatively well-paid mining sector, to some degree also from union membership in the manufacturing sector, and their finding most employment in services, helps explain the difference between the average monthly household expenditure of all urban African households and those that are headed by women: R1,205 versus R997.²⁴

Figure 4.15 African Regular Employment by Sector and Gender (percent)

	Male	Female	All
Agriculture/Fishing/Forestry	19.8	11.6	16.7
Mining	15.6	0.5	9.7
Manufacturing	16.9	12.3	15.1
Electricity and Water	2.5	0.0	1.6
Construction	8.6	0.9	5.6
Wholesale and Retail	9.4	10.4	9.8
Restaurants and Hotels/Entertainment	1.9	4.0	2.7
Transport and Communications	6.9	1.3	4.7
Finance	1.0	1.4	1.2
Educational Services	4.2	12.2	7.3
Medical Services	2.3	9.8	5.2
Legal Services	1.7	1.2	1.5
Domestic Services	2.1	31.0	13.4
Armed Forces	3.4	0.4	2.3
Other Services	3.5	2.8	3.2

Source: Project for Statistics on Living Standards and Development. South Africans Rich and Poor: Baseline Household Statistics. SALDRU, University of Cape Town, August 1994.

²³ The table understates the importance of manufacturing and construction for males, since 50 percent of male casual employment is laborers; services and manufacturing for females are, respectively, 38 percent and 40 percent of casual employment.

²⁴ By way of comparison, the equivalent figures for white households are R4,189 versus R2,644.

It is evident that there is an unequal impact on the delivery of services, and on the consequences of non-delivery, on women. One source suggests, for example, that about 54 percent of Africans must fetch water for daily use from a source outside their home or yard. Most of these are women, most are in informal settlements or rural areas, over 41 percent require a half an hour or longer to reach the water supply, and almost half of those must then wait in line, many for more than an hour.²⁵

²⁵ The National Progressive Primary Health Care Network. Hearing the People. 1994.

CHAPTER 5 POLICY CONSIDERATIONS AND INSTITUTIONS

5.1 INTRODUCTION

Policy in urban infrastructure and the environment is formulated by a wide variety of public institutions. The primary function of some of these institutions is to provide the actual services, but they are still required to formulate policies regarding priorities, standards, timing, and some financial parameters. On the other hand, some institutions have only a policy or planning role, with no responsibility for the provision of services. Some of these institutions have no executive powers, only a role of influence. Another group of institutions includes donors of financial and technical assistance, both within and from outside South Africa. Donors affect policy by the constraints or conditions they place on the provision of assistance.

The types of institutions in each category are indicated in Figure 5.1, and described below. Local authorities, themselves a policy and implementing source, were discussed separately in Chapter 3.

Figure 5.1 Classification of Institutions

Typical Institutions	Significant Role	Nature of Policy Role
Forums such as NELF, NHF; associations of local authorities or professionals	Policy	Influence
RDP office; Department of Mineral and Energy Affairs; Department of the Environment	Policy	Power
Department of Water Affairs; Water Board; Eskom; Local Authorities; Provincial Governments	Implementation	Limited
Donors, DBSA	Finance	Influence

5.2 INSTITUTIONS WITH POLICY INFLUENCE, BUT NO IMPLEMENTATION POWERS

5.2.1 Forums

During the period 1992 to 1995 South Africa was in transition. It was clear that the government was going to change. Resistance institutions such as street committees, civics, squatter associations and trade unions, in addition to the formal political parties such as the ANC and PAC, were mouthpieces for the communities who were to become enfranchised. Legally, however, the functions of government still belonged to the departments of national, provincial, regional and local government. Also, business wanted to be involved in the transition process, to monitor and influence the formulation of new policies. A mechanism was developed which allowed the various participants to meet to discuss changes in process and policy. The institutions were usually called Forums.

5.2.2 National Electrification Forum

The National Electrification Forum (NELF) was established as a result of an ANC sponsored National Meeting on Electrification held in February 1992. An interim committee was established with representatives of labor, communities, electricity utilities, ANC and government, leading to the formal creation of NELF in 1993.

NELF's role was to develop and recommend implementable strategies to accelerate electrification. Its work was carried out in groups which investigated particular issues. There were seven working groups, coordinated by a Management Committee, which reported occasionally to a Plenary of interested parties. NELF was funded by the DBSA and Eskom.

Structure of the electricity supply industry (ESI). Various alternative structures were investigated for the ESI, from a single vertically integrated national utility (preferred by Eskom) to one in which distribution was undertaken entirely by local and regional government. It was agreed that pragmatic rationalization of the existing industry would be achieved through the local government transition process. Eskom's generation and transmission business was to remain in its present form, but the distribution function in areas of former black local authorities may be taken over by agreement with local government. Eskom will operate the electricity utilities in the former homelands (Tescor, Becor, Kescor, etc.) on an agency basis until a final structure is developed.

NELF recommended the appointment of a National Regulatory Board for the ESI. The Board will have jurisdiction over Eskom and the local government utilities. The Board was appointed by the Minister of Mineral and Energy Affairs in November 1994.

Finance and tariffs. NELF recommended that cost reflective tariffs should be adopted for electricity distribution, with any taxes or subsidies clearly identified. A national domestic tariff system should be applied throughout the industry, with cost reflective tariffs for middle- and upper-income domestic consumers and lifeline (subsidized) tariffs for poor/low-usage consumers.

The need for government grants to support rural electrification was identified, but all urban electrification should be financed by the electricity distributors (utilities). Electricity distribution management and finance should be separated from other activities carried out by the organization, such as generation and transmission by Eskom and delivery of other urban services by local government.

Human resources. According to NELF there should be no loss of employment consequent on restructuring of the ESI.

Distribution technology and end-use of energy. NELF developed recommendations²⁶ regarding the technology to be used in the electrification program and for the end-use of electricity. They will be implemented by the utilities.

Future of NELF. It appears that NELF has been unable to arrange further funding; it is possible that NELF may be disbanded in the near future. NELF has served its initial purpose of being a forum for discussion during transition. Energy policy can, from now on, be formulated legitimately within the Department of Mineral and Energy Affairs. If NELF is to continue, it will need to revise its goals, structure and processes and find new financial support.

5.2.3 Associations of Local Authorities and Professionals

Although local authorities are separate organizations there is significant coordination among them on two levels. All local authorities fall under a relevant department (Local Government) within each province.

In addition there are associations of functional officials of the local government, such as town clerks, town engineers, town treasurers, and electricity managers. These associations create opportunities for discussion of alternative policies, technology, etc. For example, the Association of Municipal Electricity Undertakings (AMEU) and the United Municipal Executive (UME) strongly and successfully opposed Eskom's proposals to rationalize the EDI into a single national utility.²⁷

²⁶ These reports have not yet been distributed.

²⁷ These associations were apartheid-based, exclusive by virtue of stringent membership requirements.

5.2.4 Institute for Local Governance and Development

The Institute for Local Governance and Development (INLOGOV), with headquarters in Cape Town, is a non-profit municipal research and educational institution which advises all levels of South African government on fiscal and legislative issues. INLOGOV members serve as advisors to national government study committees and forums that consider such matters as constitutional change, revenue sources, and intergovernmental relations.

5.3 POLICY INSTITUTIONS WITH IMPLEMENTATION POWERS

5.3.1 The Reconstruction and Development Program

The Reconstruction and Development Program (RDP) is an instrument of fundamental social transformation. The White Paper sets out the vision of social transformation and the means by which the process of change is to take place.

The White Paper on Reconstruction and Development²⁸ defines the RDP as a policy framework for integrated and coherent socio-economic progress directed at mobilizing people and resources towards the final eradication of apartheid imbalances. The mechanisms by which this goal is to be achieved are through:

- developing strong and stable democratic institutions;
- ensuring representation and participation;
- ensuring that the country becomes a fully democratic, non-racial and non-sexist society; and
- ensuring a sustainable and environmentally-friendly growth and development path.

The RDP integrates national, provincial and local governments and parastatals, private sector, non-governmental organizations (NGOs) and community based organizations (CBOs). Central to policy formulation is an inclusive and representative approach of all stakeholders so that there is common ownership.

Basic Urban Needs. The RDP recognizes that a precursor to meeting basic needs is infrastructure delivery that supports development and economic growth. The provision of potable water, sanitary sewerage and electricity, among others, is essential to enhancing

²⁸ Published by the Ministry in the Office of the President and tabled in Parliament on 15 November 1994.

integrated growth, development and reconstruction. The urban environment has become the center of focus because of the growing population and inadequacy of urban infrastructure. The absence or inadequacy of infrastructure in highly populated areas contributes to a cycle of poverty and discourages economic advancement. To break this cycle, attention must be paid to:

- **Economic opportunities.** The link between the economy and infrastructure service or inadequate urban infrastructure in highly populated urban areas is opportunities for work that enhance development and economic growth.
- **Poverty Alleviation.** The availability of infrastructure services has a strong relation to economic output and consequent family income generation.
- **Spatial Efficiency.** Spatial policy will not only reverse the divide between former townships and cities, but will also facilitate household and business mobility, and foster development of an economic base in those former townships which form an integral part of a growing urban fabric.
- **Housing Markets.** The delivery of basic infrastructure and services will provide the basis for housing development.²⁹

It is envisaged that major infrastructure programs will stimulate the economy through increased demand for materials such as bricks and steel, appliances such as television sets and washing machines, and many other similar products.

Basic Principles of the RDP. The following six basic principles of the RDP are geared to ensuring a coherent program:

- **Integration and Sustainability.** A set of national, provincial and local level strategies will be developed and implemented by the Government, parastatals, business and organizations within civil society. CBOs and NGOs will be encouraged to work within the framework of the RDP.
- **People Driven.** The RDP encourages a people-driven development which involves and empowers the people.
- **Peace and Security.** In promoting and enabling economic growth, peace and political stability is essential.

²⁹ Houses (shelter) can be built by individuals in small scale activity. It is often uneconomic, however, or even impossible, to provide urban infrastructure in the same way. Thus services are important as "enablers" of housing and must be provided by public or private institutions on a large scale.

- **Nation Building.** Unity and diversity by encouraging respect and protection for minorities and accommodating cultural identities is part of consolidating national sovereignty.
- **Link Reconstruction and Development.** The integration of growth, development, reconstruction and redistribution. The key to this link is an infrastructure program that will provide access to modern and effective services such as electricity, water, sewerage, telecommunications, etc.
- **Democratization.** The democratization of society will require a process of transformation of both the State and civil society.

The President is responsible for the overall coordination of the RDP. Within the State President's office, the Minister without Portfolio coordinates a Special Cabinet Committee on the RDP to formulate policy and implementation. The Special Cabinet Committee on the RDP is made up of ministers from various departments. The Minister without portfolio is complemented by various select committees, tasks teams and working groups.

The RDP has launched The Masakhane Campaign, the National Campaign for Operational Self Reliance.³⁰ The campaign recognizes that for sustained development to take place, it must be carried out at the local level. The aim of the campaign is to develop a framework for an integrated campaign which is intended to accelerate the delivery of basic services and housing, and stimulate economic development in both urban and rural areas. The campaign will simultaneously promote the resumption of payment of rent, service charges and bond installments in order to create the necessary conditions for large scale investment in housing, services and economic development. The campaign will focus on:

- mobilizing state and private sector resources;
- immediately enhancing the administrative capacity of transitional local government;
- maximizing community participation and responsibility;
- integration with RDP projects; and
- democratization of local authorities.

³⁰ See 6.5 for further discussion.

5.3.2 Department of Mineral and Energy Affairs

The Department of Mineral and Energy Affairs (DMEA) is a department of central government with responsibility for coal, petroleum products and electricity.

Most of the electricity generation, transmission and distribution is carried out by local governments or Eskom and the DMEA's regulation or intervention in the electricity industry is relatively light. However, the DMEA Minister appoints the members of the Electrical Control Board (also referred to as a national regulatory board) which has been recently (November 1994) given more extensive powers than before. The new powers of the Board include jurisdiction over electricity distribution activities by local government within their municipal area and of Eskom (both of which were formerly excluded from control by the Board), the power to regulate the tariffs of all electricity distributors and the power to assign distribution rights to another authority if insufficient progress is being made in electrification.

5.4 IMPLEMENTATION INSTITUTIONS WITH POLICY COMPONENTS

5.4.1 Department of Water Affairs and Forestry

The Department of Water Affairs and Forestry (DWAF) is the department of central government responsible for water supply policy formulation; it is the controlling authority on water quality. The planning and design of water supply schemes is centralized, as is control and management of construction (dams and pipelines), although the construction capability has been scaled down during the past six years, in favor of construction by contract.

Regional directorates administer routine activities such as facilities maintenance, issuance of water permits and control of effluent discharge. The DWAF is largely unrelated to the Water Boards, but monitors their operations.

The DWAF influences sewage treatment through its control on effluent disposal, in particular the contamination of ground water reserves or the return of effluent to surface water systems. The DWAF has a relatively small influence on the direct provision and operation of urban water distribution.

5.4.2 Water Boards

Water boards are cooperatives established to unify different water user groups, including mines and groups of municipalities. The two biggest water boards are Umgeni Water Board in Natal and Rand Water Board in Gauteng. Irrigation Boards are water boards established primarily for control and operation of water development for agriculture.

The status and scope of activities of water boards are controlled by the DWAF. Generally water boards are not involved in water reticulation in urban areas, only in the bulk supply of water to local authorities which carry out the distribution.

5.4.3 Eskom

Eskom is a statutory corporation controlled by a Board appointed by the Minister of Mineral and Energy Affairs. Eskom was established in 1927 as the Electricity Supply Commission to take over responsibility for electricity generation from existing private companies, notably the VFTP Company. Eskom was responsible for supply to the mining industry, railways and in rural areas. Within the areas of municipal authorities, electricity was already being generated and distributed by local government. Municipalities have retained this right, but have been so constrained by Provincial Administrators in the establishment of new generation capacity that, in practical terms, Eskom is the only major generator of electricity, from which virtually all municipalities must buy their supplies.

Eskom is self-funding in that it raises loans in financial markets in South Africa and externally, servicing the loans from revenue. Eskom has had a large measure of control over its tariffs until the recent changes regarding the Electricity Control Board, and has been able to regulate its revenue and profit to establish a good financial rating.

Eskom carried out a major power station building program during the early 1980s, in reaction to undercapacity in 1978/79. A substantial overcapacity had developed by the end of the decade and no significant power station investment has been undertaken since then. As a consequence, Eskom is financially very liquid and would find it easy to raise funds on world financial markets.

Eskom has traditionally funded electrification investment from its own sources and by issuing Electrification Participation Notes on the local market. Recently, a R300 million per year loan facility for electrification has been granted to Eskom by Japan.

Eskom decided during the early 1980s, when its emphasis was on building power stations, to withdraw from urban electricity supply. It sold many of its urban networks, developed during the urbanization of rural areas, to the local authorities which were then established in those areas. When the power station program was curtailed Eskom changed its policy and sought to unify the electricity distribution industry. Local authorities reacted strongly, opposing Eskom within NELF and other forums.

The major issues are whether electricity distribution should be controlled and implemented in a central, national organization or at the decentralized local government level; and how the trading surpluses of electricity utilities should be used.

Matters are complicated further by proposals that Eskom be privatized, allowing private sector investment and using the capital received to fund the RDP.

Clearly, the future role and responsibility of Eskom in electricity distribution is associated politically with the role and responsibility of local government, which has not yet been determined. At present, as agreed at NELF, the structure of the electricity distribution industry will not be changed.

A further issue affecting Eskom, particularly during the last four years, has been non-payment for electricity supplied. The problems initially arose because of payment boycotts of Black Local Authorities. At first the Provincial Administration provided "bridging finance" for the BLAs to pay their Eskom accounts. However, when the policy was changed, Eskom quickly accumulated a substantial bad debt, now estimated to exceed R400 million.

The bad debt outstanding in African areas is of very substantial proportions. Although payment trends are improving in some areas,³¹ the level of recovery remains so low that the accumulated bad debt is still increasing rapidly. Eskom reports the following experience in payment of electricity accounts:

- In African areas where Eskom retails directly to households, payment levels varied between 8 and 18 percent during 1994 and in earlier years. However, in February 1995, payment had risen to 30 percent, although it is not clear whether this is a trend.
- Payments to Eskom from Black Local Authorities responsible for electricity supply in their areas are not yet showing signs of improvement.
- Where BLAs have been incorporated into TLCs, there has been a substantial improvement in the receipt of payments by Eskom, as the former WLA areas are effectively paying for the former BLA areas. From Eskom's perspective, the bad debt is carried by the TLC rather than Eskom itself.

In confronting this, Eskom has declared that the viability of the electricity supply industry depends on a reversal of the non-payment situation by domestic consumers as the country cannot afford to provide services under circumstances where customers are not paying for them.

³¹ The Masakhane Campaign and other efforts have already proven effective in changing the culture of non-payment.

5.5 SPECIAL CASE OF PROVINCIAL AUTHORITIES

The powers and functions to be assigned to the provincial level of government are not settled at this time. The thrust of governance in the new South Africa is toward providing each service at the lowest feasible level of government. However, there is a significant portion of the rural part of the country that has no capacity for effective infrastructure management by local government. In the case of water service, this problem has been dealt with through the use of Regional Service Councils.

Strong consideration is being given to provincial governments assuming major infrastructure responsibilities in rural areas. Among those duties that appear to be assignable to provinces in the rural areas are planning, design, and construction of water and sewage works.

Some local officials decry that option in that provincial governments have historically been involved only in the provision of health and education services. But even the critics of stronger provincial government concede that the use of such large and organized entities as provincial administrations may be the only feasible of servicing the most sparsely populated areas. Moreover, they concede that there may be a legitimate role for provincial governments to play even in urban areas, perhaps in the collection of revenue.

Provincial governments currently have review and consent powers over the actions taken by municipalities, with the exception of those actions which have implications for national economic issues. Theoretically provinces may, under interim constitutional provisions, overrule electric department budgets for municipalities, in effect changing the tariffs they may charge for a given expenditure level. That potential power causes some concern at the local level, where municipal officials are held accountable for running financially sound utilities.

Provincial governments have no taxation powers at present, but some provincial advocates are seeking them despite the strong argument that there is a vast disparity in the ability of the provinces to raise revenues.³² A full 80 percent of Gross Domestic Product is generated by metropolitan areas, pointing strongly to the tax-raising abilities of the more populous provinces. Some believe that giving provinces broad taxation powers would lead to inequities in service provision and would work against the national wealth redistribution goals of those who have brought about a change in government and the constitution itself.

There is also a perception that provincial governments are overstaffed in general and that there is a mismatch between the skills now possessed by provincial civil servants and the

³² The World Bank reports that the highest per capita income in the wealthiest province is six times higher than in the poorest. Tax collection is an estimated nineteen times higher per capita in the wealthiest province than in the poorest.

types of positions those civil servants would fill under a greatly expanded role for provincial government.

The RDP's framers recognized this lack of governing capacity at the provincial level, and suggests that the constitution implies an increased coordination role for provinces only when they have proven their competence. The RDP White Paper describes criteria for devolving powers to the provincial level:

- the provincial government's capacity to implement people-centered development;
- the provision by provincial administrators of major development roles for community-based and non-governmental organizations;
- evidence of an increased capacity for people to work in groups and institutions;
- the identification and mobilization of local resources; and
- maximization of local area assessments of needs and capabilities.

These factors clearly suggest a situation in which provinces must make adjustments and improvements in their administrative structures before they logically will be given broad administrative and taxation powers. Debate continues on this point as the final version of the national constitution takes shape for ratification in 1996.

5.6 BI-LATERAL AND MULTI-LATERAL DONORS

5.6.1 Introduction

The South African government is currently engaged in an intensive exercise to determine the infrastructure requirements of the country, their costs, the institutions required to deliver that infrastructure, and the appropriate financial arrangements. The exercise is being conducted as a joint undertaking by the Urban Infrastructure Investment Planning team, a Development Bank of Southern Africa (DBSA) team which is examining the cost and affordability of infrastructure in medium and small towns, and the World Bank urban mission. Preliminary results of this effort are summarized in 5.6.2 below.

The government is also maintaining ongoing contacts with bi-lateral and multi-lateral donors. USAID in fact coordinates the donor input and is familiar with each donor's intentions. This summary arises from comments and limited observations of interactions among South African, National Housing Forum, donors, visiting experts, as well as city government officials.

5.6.2 Urban Infrastructure Investment Program

The program

- estimates the urban infrastructure investment requirements for the country;
- makes recommendations regarding the institutions, policies and processes necessary to supply the infrastructure;
- makes recommendations regarding the financial policies, resources, systems and institutions required to make this supply possible; and
- strives to achieve integrated planning at the local and provincial level in the simultaneous delivery of housing and community facilities, as well as to link the supply of infrastructure with national policy initiatives.

The estimates and recommendations concern five key services which form the basis of the document: roads, electricity, water, sanitation, and storm water drainage which are supplied for housing, community, commercial and industrial purposes. The research was conducted for the major metropolitan areas, secondary cities and medium and small towns: The work strives to be sensitive to differences in their needs, institutional capacities and financial resources.

The program is based on a number of key assumptions which are as important for what they include as for what they leave out. The assumptions and the associated methodology are intended to provide an overall estimate for different types of towns and a credible framework for policy intervention. Each local authority that uses the methodology for investment programming and financing must vary the assumptions in light of local conditions. The methodology and financial estimates, being oriented to infrastructure, exclude a more holistic sense of local authority affordability that would arise from including social service obligations such as primary health care and capital expenditures such as community halls.

The Program provides a step by step guide for local authorities to:

- apply the methodology for infrastructure investment programming;
- identify the necessary institutional processes and structures;
- assess household and local authority affordability;
- secure financing;

- link investment in infrastructure to economic development; and
- incorporate environmental concerns into the design of an infrastructure investment program.

5.6.3 Comments about Donors

Donors face a number of constraints. First, they are mandated to provide grants or soft loans within certain specific sectors such as housing, health, environment urban development, etc.³³ These areas may or may not have a bearing on the priorities of the host government. Second, their resources and administrative capacity prohibit a national spread and they are generally forced to choose one geographic area or another. Again, these areas may or may not reflect host government priorities. Third, donors are encumbered by decision-making procedures that are centralized and slow.

In addition, donors will often seek to provide technical assistance that has a fundamental impact on domestic policies. Although these policy contributions are usually requested by the host government, the contribution of the visiting expert might well not be viewed as particularly helpful. Donor support is often a mixed blessing, as evidenced by the following concerns:

- donors tend towards high-profile projects in politically appealing and visible cities and provinces, and so ignore more poverty-stricken areas;
- donor networks create the potential for deliberations that exclude the government, creating circumstances in which, for instance, donors divide up cities, provinces and projects among themselves;
- donors reference domestic policies and priorities but their actual coordination with the government is minimal;
- the priority for visiting experts is to serve their clients, the donors, rather than the host country and they are therefore constrained to politically correct policy recommendations;
- donors have limited capacity to make rapid decisions and commit substantial resources; and

³³ Donors active in urban development support Special Presidential Projects, housing finance and delivery, urban infrastructure, and policy initiatives (with local economic development a new thrust).

- the insights provided by visiting experts funded by donors are often viewed as misleading and empirically incorrect.

The overall issue centers on whether or not donors serve government priorities and programs. With a view to coordinating the efforts of donors, the South African government has established an International Development Coordinating Committee (IDCC), and has provided guidelines to donors for interacting with all levels of government and NGOs.

In the meantime, there is clearly frustration on both sides. South Africans often view donors as isolated from local issues of policy formulation. Many donors desire to coordinate with government, but feel that there is a lack of policy direction and institutional capacity, and are confused about whether their first obligation is to link with line departments or the RDP Ministry, and also with those departments relative to provinces and local authorities. This confusion arises because:

- while the RDP Ministry is responsible for steering development in South Africa and for coordinating the activities of the line departments, the line departments have responsibility for implementing development programs and also have institutional capacity;
- while the constitution gives the provinces extensive power of development functions such as housing, education, and health, they have uncertain institutional effectiveness and budgetary transfers are in any case largely made by central government; and
- many local authorities have the capacity to utilize aid and implement development programs and projects, and can do so in an expeditious manner.

CHAPTER 6

IMPLEMENTATION MODELS AND COMMUNITY PARTICIPATION

6.1 CONCEPTUAL MODELS

Infrastructure in developing countries is often characterized by a lack of maintenance which results in the facilities falling into disrepair. Figure 6.1 illustrates that the ultimate condition of infrastructure projects depends on the capital cost, maintenance, administration, and training, and that all are needed for sustainable development. In Figure 6.2 the concept is extended to the elements involved in the provision, maintenance, and use of infrastructure. The ideal situation for sustainable development combines institutional capacity, engineering, and community liaison.

Institutional capacity is a key factor in development. The institutional structure usually reflects the size and sophistication of the community. The relationship between development issues and institutional structures is illustrated in Figure 6.3. The sophistication of the community reflects its education, employment, and economic activity and, as such, is related to the capacity that a community has to pay for its services. Very poor, unsophisticated communities have not only low institutional capacity, but also a limited capacity to pay for services and, therefore, must rely on external funding of both capital and maintenance costs. As the community's sophistication and institutional capacity increase, so too does its ability to sustain development finance at market interest rates. This relationship between finance, institutional capacity, and projects is illustrated in Figure 6.4

Implementation models for infrastructure projects must, therefore, take into account the community, its institutional structures, skills, and economic activity, as well as the engineering and project finance.

Figure 6.1 Effect of Maintenance and Administration on Sustainable Development

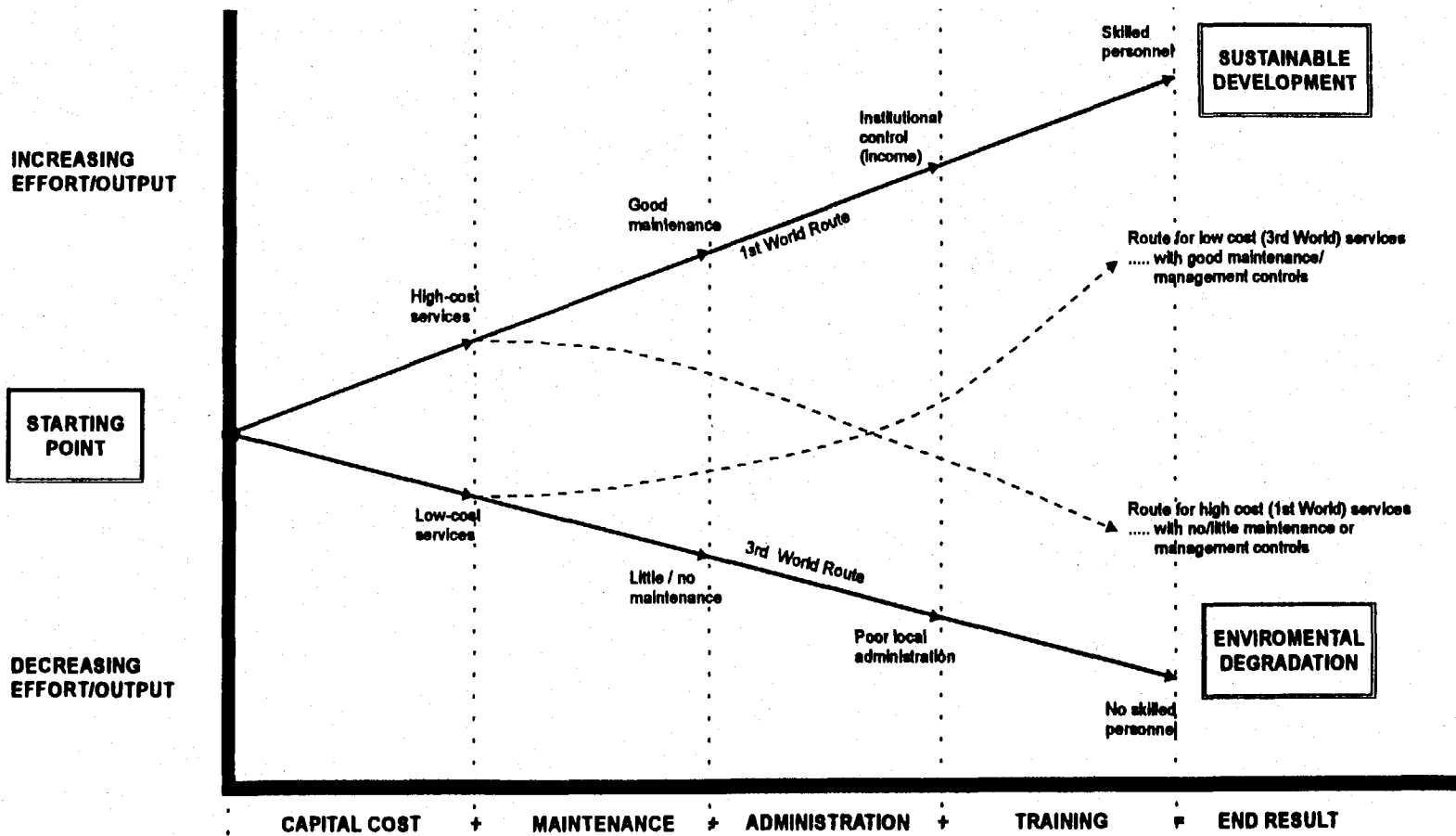


Figure 6.2 The Role of Technology, Management and the Community in Achieving Sustainable Development

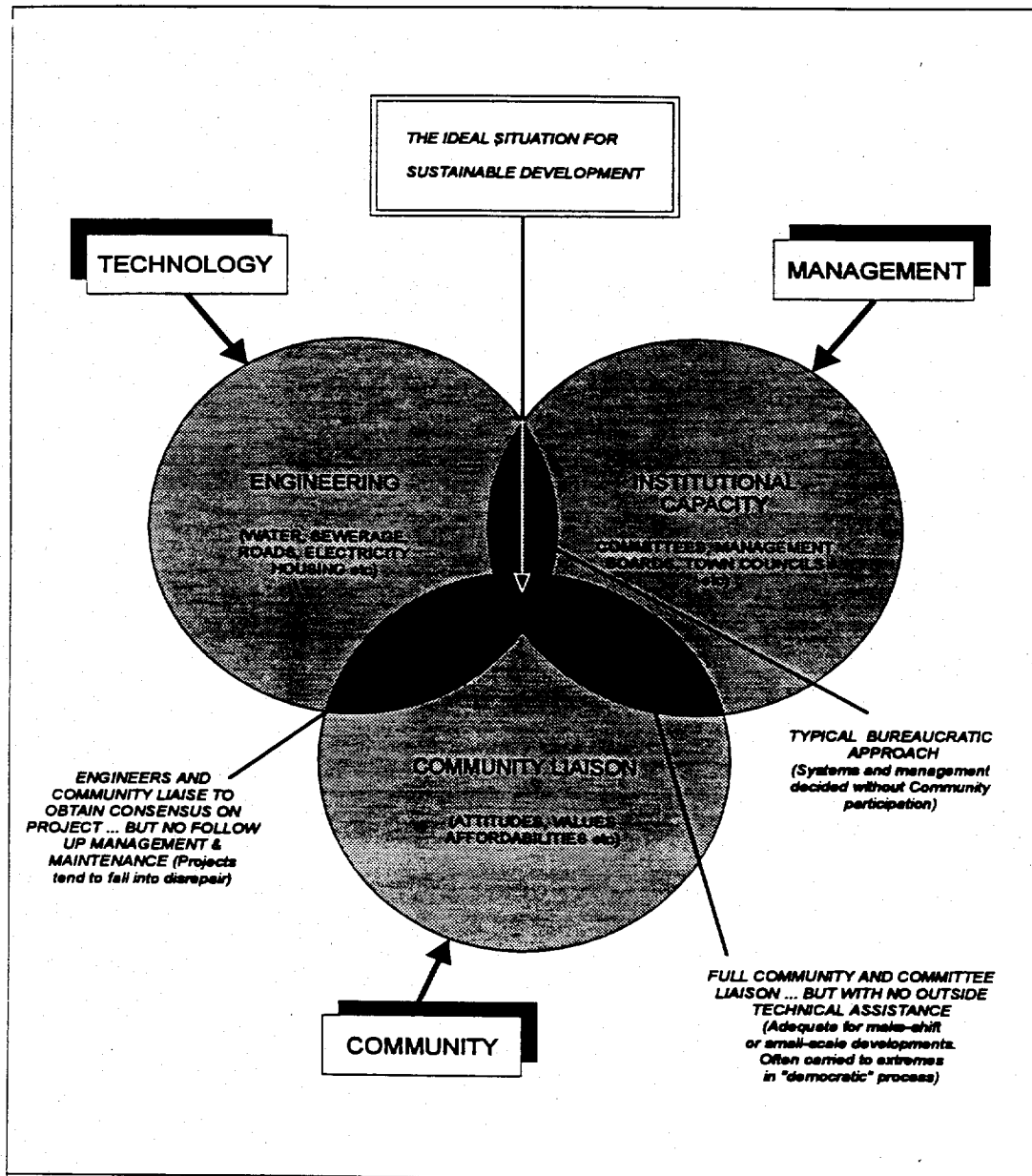
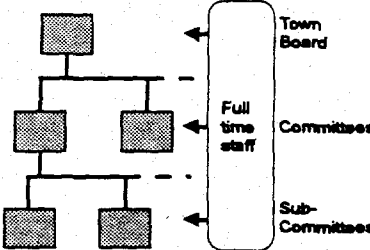
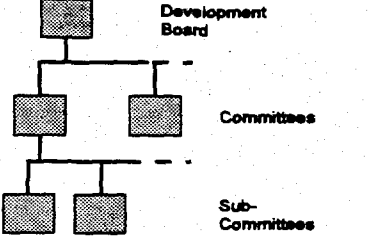
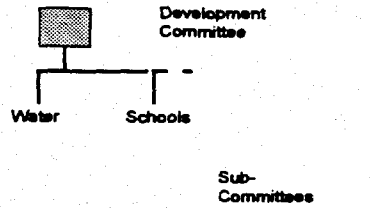
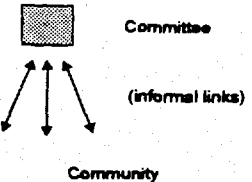


Figure 6.3 The Relationship Between Development Issues and Institutional Structures

LEVEL OF DEVELOPMENT	INSTITUTIONAL STRUCTURES	TYPICAL ISSUES
9	CITY COUNCIL	
8	TOWN COUNCIL + { Town Clerk Engineer Treasurer	↑ ENVIRONMENT ↑
7	TOWN BOARD + { Sec. Tech. Social	RECREATION ↓ SOCIAL ↓
6	MANAGEMENT BOARD + { Sec. Tech.	↓ ↑ ↓ ↑ ↑
5	DEVELOPMENT COMMITTEE + Sec.	↑ ELECTRICITY ↓
4	DEVELOPMENT COMMITTEE (Co-ordination) + District Manager (extention officer)	↑ SEWAGE DISPOSAL ↓ ELECTRICITY ↓ SCHOOLS ↓
3	COMMUNITY COMMITTEE STRUCTURE + District Manager (extention officer)	↓ SEWAGE DISPOSAL ↓ HEALTH ↓
2	SPECIAL COMMITTEES (eg. Water/Health etc on permanent basis) + Community Facilitator	WATER ↓ ↓ HEALTH ↓
1	SPECIAL COMMITTEES (eg. Water/Health for duration of specific tasks) + External Assistance	↓ ↓
0	EXTERNAL	

Figure 6.4 Inter-relationships Between Finance, Institutional Capacity and Projects in Promoting the Development Process

FINANCE	INSTITUTIONAL CAPACITY	PROJECTS
<p>DEVELOPMENT FINANCE (normal interest rates)</p>	 <p>Town Board Full time staff Committees Sub-Committees</p>	<p>LARGER RANGE OF JOBS (Self Generation) • Basic Industries + Commerce • Service Industries etc.</p>
<p>DEVELOPMENT AID (low interest rates + repayment)</p>	 <p>Development Board Committees Sub-Committees</p>	<p>PERMANENT JOBS (External Generation) • Agriculture • Manufacturing • Block making etc.</p>
<p>GRANT AID (No repayment)</p>	 <p>Development Committee Water Schools Sub-Committees</p>	<p>TEMPORARY JOBS • Roads • Water • Community Hall (NB: labour - reward - result)</p>
<p>MINIMAL</p>	 <p>Committee (informal links) Community</p>	<p>DEVELOPMENT FRAMEWORK (Dev. Audit) • Needs • Priorities</p>

6.2 THE COMMUNITY ORGANIZATION FRAMEWORK FOR IMPLEMENTING A DEVELOPMENT PROJECT

There are three ways in which community empowerment takes place: skills transfer, organizational development, and economic growth.

6.2.1 Skills Transfer

There are many different aspects in the design and implementation of infrastructure projects, from setting the initial strategy, through design and construction, to the ultimate long term management. All of the processes involved are technical to some degree, and could be entrusted to professionals to implement alone. This was the old model. However, the empowerment model views development as a continual process. Thus, the more the community understands the process of decision-making regarding the first project they undertake, the better informed and equipped they will be to guide projects in the future.

Systems for obtaining a popular mandate, for reporting back to the community, ways of determining strategies and criteria for making decisions, ways of prioritizing conflicting demands on budget, ways of obtaining the best technical advice and the least cost construction skills, ways of managing installations -- all of these apply to a wide variety of life situations, from household management to running large and small businesses to community development.

Teaching such skills in a vacuum usually has little impact. Without the opportunity to practice the skills, the lessons are not retained and the teaching has little long term impact. By contrast, when the skills required are imparted, the content is subject to critical appraisal, and retained for a very long period. There are three ways in which this can happen:

- Formal courses in which people are trained in specific skills. Examples of these are the Independent Development Trust (IDT) Consolidation coordinators courses, computer operating courses, bookkeeper courses, etc.
- Workshops conducted within a community in which specific topics are explained and learned. For example, establishing a committee system, reporting back methods, proper methods for the conduct of committees, and workshops on strategizing, planning, management, etc.
- One to one training and advice on specific skill areas, e.g., assisting small business owners to improve their management techniques.

6.2.2 Organizational Development

One of the crucial areas in which development empowers people is in organizational development. To undertake development well, a community needs to be organized in such a way that information flows both upwards and downwards.

Another aspect to organizational development is the creation of a sustainable financial base. Voluntary organizations have their place, and much of the finest political work is undertaken by volunteers. However, in a very poor community there simply are not sufficient funds to keep even the simplest of organizations afloat without some small resources. This is an important goal which development can help the community to achieve -- applying the principles of charging and payments, the need for records and transparency, and the principles of delegation and supervision. It is in this context that community organizations can benefit from assistance such as training in management and in fund-raising.

6.3 PARTICIPATION OF CBOs AND NGOs

Implementation models for various institutions are not readily available. The important role of CBOs and NGOs in infrastructure service delivery is captured in the Urban Infrastructure Investment Programme and the White Paper on Reconstruction and Development respectively.

The implementation framework envisaged by the Infrastructure Investment Programme considers CBO involvement in the planning, financing and delivery of urban infrastructure and services fundamental. Positive spin-offs are envisaged:

- A community-based participatory implementation process will enable beneficiaries to determine the types and levels of service to be provided and ensure that it is demand driven. This endogenous grassroots implementation process will ensure sustainability.
- Community involvement has the potential of facilitating the payment of services and provide the basis for breaking the culture of non-payment. Where communities have limited options or may be locked into specific delivery mechanisms, the direct involvement in the delivery process and financing of services provides an alternate avenue for providing "competitive" pressure on the suppliers of services. Participation of communities in the process of delivery is often as important as the final delivery itself.

The RDP White Paper echoes similar sentiments vis-a-vis NGOs and CBOs:

- The Government will provide financial support to NGOs that advance the Reconstruction and Development Programme.³⁴
- The Government should not create dependent communities. However, government encourages NGOs and CBOs to be alternative resource and service providers as long as they are characterized by representation, accountability and effectiveness.
- NGOs and CBOs are part of a checks and balances system, ensuring that Government does not act unilaterally, without transparency, corruptly, or inefficiently.
- The RDP encourages a social partnership between Government and sectors such as organized labor, civics, business, women's groups, religious and cultural groups, and consumer and environmental movements.

Still another model of community action, from the Water Research Commission, suggests that although mass meetings may be held, it is necessary for discussions to be held with leaders of particular organizations in the community. In doing this it is essential to be inclusive and deal with all organizations which have substantial support in the community.

Subjects for discussion with community representatives include levels of service, payment for services and arrangement for implementation.

A steering committee should be established with representatives from all important groupings to deal with issues associated with water and sanitation. The primary objectives of the community participation process is an indication of what type of sanitation system people would want and could afford to pay. Participation also needs to take into consideration neighboring communities that could be affected by service projects.

6.4 CUSSP EXPERIENCE IN HOUSING PROVISION

6.4.1 The Model

The Community and Urban Services Support Project (CUSSP)³⁵ experience in housing is an implementation model to be considered for municipal infrastructure. CUSSP assists CBOs improve their capacity to promote, with stakeholders, the provision of housing. The CUSSP

³⁴ A coordinating body for NGOs may be established.

³⁵ CUSSP is financed by USAID.

concept and approach is based essentially on traditional community development principles. Those features that lend themselves to infrastructure provision include:

- There must be a representative system by which the community can make decisions.
- The relationship between the actors in the development process must be equal. In most service projects there are four separate forces at work:
 - **The Client.** The client in a housing project is both the community that will benefit from the project and the occupants of the housing. There are two requisites for success. The community must be able to determine the design of the development. This implies that the client can select the consultants working on the project, and ensure that they understand and approve their work. There must be a transparent and competitive tendering process for construction.
 - **The Developer.** The community must ensure that the developer, whether public or private, is operating in the interest of the community and that a transparent mechanism exists for the procurement of goods and services for the development.
 - **The Financier.** In most cases the financier will be either the state or private developer. In either case the community has a major responsibility to determine whether they are securing the most advantageous terms from the financier and that the money is spent wisely. Most importantly, the community must determine that the financiers do not impose conditions on the development that create a future burden that the community cannot bear.
 - **The State.** Whether or not the state is a financier, it has statutory powers concerning planning, infrastructure and building regulations. These powers will normally be applied through the Local Authority or the Provincial Government.
- Roles and responsibilities, including for payment and maintenance, must be clearly understood.

6.4.2 The CUSSP Role

CUSSP contributes to empowerment activities. It supports a variety of skills training activities, usually by funding individuals to take courses, or through community workshops, as appropriate. These are conducted either by the CUSSP staff or others working at CUSSP's request; all costs are met by CUSSP.

CUSSP also promotes organizational development and makes grants to assist in establishing a self-sustaining community organization, and establishing a viable, legally recognized community development vehicle. Workshops on issues of community management and leadership styles are held, and community leaders are regularly counselled on management systems and styles.

CUSSP has assisted communities engage consultants to advise them on these matters, and is developing networks of people and firms with experience in this field as community resources.

6.4.3 The Klipfontein View Model

AECL, a land owner in Modderfontein, responded to a demand for low-income housing by identifying a site -- Klipfontein View -- for immediate development. In order to ensure that an integrated and community-based approach be adopted, a Modderfontein community forum was established. During the past year, the forum has established a community participation process through a steering committee by which various communities in the immediate sub-region have participated. With the catalyst role played by CUSSP, the Klipfontein View development process has been comprised of

- **community participation** (needs determination; evaluation, management assistance);
- **management** (marketing, finance, settlement, and post settlement); and
- **technical advice** (town planning, engineering, construction).

This process has assured appropriate consideration for community needs, affordability by the residents, management, and at the same time facilitated the preparation, development, and release of the land for the development.

6.5 COOPERATION BETWEEN LOCAL GOVERNMENT AND THE PEOPLE

Because the RDP depends on democracy and social stability in local communities, the management of institutional change and the delivery of municipal services must occur simultaneously. Local government is the key institution in the delivery of basic services, extending local control, managing local economic development and redistributing public resources. Indeed, stronger community groups are the very ones likely to be incorporated by local governments in decision-making, and in turn, more capable local governments will seek community participation to ensure effective programs.

The RDP White Paper and the Masakhane Campaign support each other through local government's obligation to restore and upgrade services where they have collapsed and extend services to new areas.

Local authorities must make sufficient resources available for the extension and upgrading of municipal services and for capacity-building to permit community-based structures to assist in local planning and implementation of the upgrading.

Additional financing from the RDP Fund will be conditional upon a set of criteria which demonstrate local authorities' good faith in moving to participation as rapidly as possible. Funding will be provided only if the following take place:

- Amalgamation of jurisdictions proceeds effectively;
- Single budgets are adopted for a single municipal area;
- Local government electoral process is under way;
- The local authority becomes developmental in its orientation;
- The local authority actively seeks to win the trust of local residents;
- Creative financing is developed;
- Service delivery is more efficient; and
- The local authority demonstrates that it is in the transitional phase, shifting resources (staff, management, equipment, skills), changing their spending priorities, freezing clearly inappropriate projects and engaging in consultation with community groups.

The success of local RDP initiatives, and the campaign for payment of rent, service charges and bonds, will depend on rising employment levels in communities. It is vital that job creation strategies are part of the campaign. RDP projects, including urban renewal and rural infrastructure, are seen as integrated facets of the campaign, which will promote local development and jobs. Local economic development should be a priority of local authority. Local government must understand the nature of its local economy and range of development mechanisms at its disposal, such as attraction of investment to local areas, local authorities to tender procedures to favor small enterprise and labor intensive projects, support packages for the informal sector, and taxation and tariff incentives for disadvantaged or strategic sectors.

An important part of the Masakhane Campaign will focus on the introduction of systems for proper payment for services. Service providers will implement workable payment systems,

proper records, delivery of accounts, meter reading and promulgated tariffs. Mechanisms to assist families genuinely too poor to pay for basic services will be introduced, while questions raised by arrearage remain political issues.

Successful delivery programs will also depend on the roles played by Community Based Organizations and Non-Governmental Organizations. The campaign will aim to strengthen the role of these organizations through training and capacity building programs, so that they can cooperate with local authorities in the delivery of services. One effect of the Masakhane Campaign is the creation of suitable conditions for the resumption of payments. This in turn will enhance the long-term sustainability of service delivery.

CHAPTER 7 INFRASTRUCTURE FINANCE

7.1 COMPARATIVE EXPERIENCE

The United States model for infrastructure finance and management differs from the South African in several respects. Most notably, while in both systems the finances of utility enterprises are "ringfenced", or segregated from the general operating budgets of the municipality, in the United States the utility surplus or deficit is not routinely an offset to the financial position of the general fund. In the United States checks and balances are established by state laws and local ordinances to prevent "raids" on enterprise surpluses or capital reserves to balance general fund budgets or to pay for services beyond the scope of the utility. Where Federal grants or loans are involved in construction of utilities, conditions are set by the Federal government as to the treatment of enterprise funds, with segregation being the prime method for protecting the capital investment and providing for capital replacement.

In the United States the local authorities set water and sewer tariffs, either through semi-independent boards of directors of the utilities or by the generally elected city council which sits as a utility board. States vary in the level of rate oversight they perform, while in South Africa the provinces have review power over local authority budgets, indirectly having powers to overturn local rate decisions.

Wastewater collection and treatment utilities in the United States are set up as independent authorities which set rates based on water consumption and do not issue bills under the general property tax levy. In South Africa there is a mixture of approaches, with wastewater sometimes being directly under the administrative and financial control of the general local government and sometimes being quasi-autonomous in terms of billing and tariff structure. But by no means is the wastewater function considered to be a trading service as is the water function.

7.2 CONSTRAINTS TO FULL DISTRIBUTION

One of the major constraints to more complete distribution of utilities to the former black townships and rural areas is the daunting cost of construction -- with estimates as high as R37 billion -- compressed into the seven year goal of the RDP. Some officials feel that the timetable agreed to is overly ambitious, and that ten or more years is a realistic schedule for providing water, waterborne sewerage, and electricity to those areas which have been systematically excluded from service provision or have for other reasons been outside serviced jurisdictions. The Treasurer of Cape Town, for example, cites the extreme pressure

that will be placed upon municipal budgets as infrastructure construction takes a more prominent position in the hierarchy of spending programs in all cities, large and small.

Another constraint on the development of services is the non-viable economics of providing a high-cost service to those unable or unwilling to pay for it. The investor facing a low likelihood of recovering costs must make difficult policy choices about pursuing uneconomic activities.

Competition for public funds is at a high level as rising expectations of the new voters and the newly-elected and appointed public officials translate into public debates, and the transitional local authorities try to accomplish as much as possible before municipal elections take place in late 1995. Public demands for better schools, job training programs, health services, and social services of many kinds increase the pressure on all levels of government to increase spending for immediate gains and improvements to the standard of living.

In addition to the sheer magnitude of the need for basic infrastructure and the public's expectation that it will be provided in the very near future, there are major institutional problems confronting service providers. Foremost among these is the current lack of a viable municipal bond market.

It is estimated that R50 billion over five years (including inflation) would meet infrastructure needs nationwide, and in that the insurance industry in South Africa has total investments of R500 billion, a 10 percent commitment to municipal infrastructure investment from that source alone would be all that is needed.³⁶ However, there are significant reasons why the South Africa municipal bond market is presently in disarray, and investment in local government capital projects is not attractive.

The demand for municipal bonds has diminished in recent years. The larger cities used debt financing from 1948 to 1988, but in recent years that approach has been supplanted by the use of large capital development funds. As the major cities have built up capital development funds and loaned out of those funds to municipal departments on a revolving basis, the need for bond financing has not been present.

This arrangement was especially attractive in times of high interest rates, and served large cities well as a cushion against economic fluctuations. Small cities and rural governments did not participate in or benefit from this practice, however.

Absence of strict arbitrage laws has further clouded the situation, in that rules for retaining and reinvesting borrowed funds are not firm. Nor is there a set of incentives for investors to venture into the municipal bond market. While it is typical in many countries for bond

³⁶ Philip van Ryneveld, INLOGOV.

dividend tax exemption to be offered as an incentive, that practice has not been adopted in South Africa because there is a desire to stay away from "tax breaks" of the type which favor the wealthy.

Underfunding bulk utilities is a second source of problems in meeting the country's overall utility needs. Domestic consumers are paying only about one half of the initial cost of capital construction, and then only 80-90 percent of the ongoing operating cost via the tariff. These figures are based on an assumption of full payment of tariffs, not taking into consideration boycotts and other forms of non-payment.

For example, in 1989/90 in the city of Johannesburg the operating cost for water provision was R1.20/kl, and the assigned tariff for domestic customers was R1.00/kl. The commercial/industrial rate base made this up, at R1.695/kl, or nearly 70 percent higher than for domestic users of water. Commercial/industrial users, as reliable payers, were in effect subsidizing all non-paying domestic customers.

The primary effect of this cross subsidization, and similar schemes in other cities, is the continued separation of the cost of capital construction from the required tariff to recover that cost. Other contributing causes of this unclear relationship are the mingling together of municipal charges for water, wastewater, and solid waste and the application of flat tariff rates.

All these factors have contributed to the slow growth of utility extension in those residential areas where income has been below the national norm, and although the need for extensions of service has been well-documented, the planning and the financing have not been put into place for the former black townships. The reasons are partially financial, as described above, but also a direct result of apartheid policies.

Metropolitan government, in whatever form(s) it takes, will resolve many central planning and service delivery issues for the former black townships. While the format for such regional governance structures is not settled, and while forms of metropolitan government may well differ in various areas of the country, local officials are looking forward to the establishment of metropolitan structures for the planning of infrastructure reticulation, development of fair and appropriate levels of service, and the efficient collection of tariffs. In the rural areas, where Regional Service Councils have suffered from limitations in providing infrastructure services, local governments look forward to provincial or regional structures with the ability to plan and administer programs in areas where there will be local councils set up to govern generally, but without the size and depth to construct, maintain, and finance major infrastructure.

As an example of metropolitan government's assumed advantage over the WLA/BLA system, Cape Town is on the verge of setting up a two-tier governance system, with 70 local

authorities coming under the umbrella of the metropolitan government. While precise duties and functional jurisdictions have not been determined for each tier, it is anticipated that the lower level will be charged with reticulation and operations and maintenance, and the upper tier will be charged with project planning, rate-setting, and collection of tariffs.

Cape Town officials feel that there is rationality in a metropolitan government deciding questions of equity for consumers across a broad spectrum. Having the upper tier control the finances and collect the revenue is the most efficient way to operate in the long term, and powerful metropolitan governments will ensure a parliament which is attentive to problems of the large cities and their suburbs.

7.3 COSTS

One way to approach costs of infrastructure extensions to the former black townships and rural unserved areas is to consider the cost per household for hookups of water, waterborne sewerage, and electricity. One city where this analysis has taken place is Port Elizabeth. That city has begun an infrastructure extension program which will provide basic water, wastewater, electricity, paved roads, and for 4,000 housing units. Total funding for the two programs is R72 million, including both local efforts and the centrally-funded Special Presidential Program.

The total infrastructure improvement per household is R17,500, of which R9,500 is for sewer and water, R2,500 is for roads and other improvements, and R5,500 is put up by the electric utility for service. This R12,000 cost for sewerage and water, if considered for new housing, represents a very large share of the total cost (R35,000) of providing a decent unit. That is, the R12,000 represents 34 percent of the cost of that unit.

Applying that figure to the upgrading of substandard housing, it is readily apparent that the cost of the utilities is in excess of the value of the dwelling by huge multiples. This strongly implies that the municipality is investing in the long-term use of the improved lots, and has an incentive to see that the present substandard units are replaced by substantial structures capable of yielding significant property tax and fee income in the years ahead.

Another way of looking at the overall cost of infrastructure extension and upgrading is to consider the aggregate increase in all fees and taxes. It is estimated that the full cost of upgrading and building the utility systems nationwide over five years would entail a three percent per year increase in all local taxes and fees.

The electric fee constitutes 40 percent of local collections, and if the attempt to take electric revenue out of the local control is successful, the increase then becomes five percent.

Coupled with other critical social and educational needs of the population, this increase will be politically difficult or impossible to accomplish.

The RDP's Urban Infrastructure Investment Planning (UIIP) team estimates the cost for infrastructure service upgrading in four urban areas, taking into account the varying levels of service that could be provided. The analysis lists the cost per beneficiary for the various types of service and the various levels.

According to that study it would cost in excess of R10.3 billion to provide full services (water, sewerage, and electricity) to the metropolitan areas and other urban areas, based on 1995 prices. Basic service provision would be R2.1 billion, and the intermediate level is estimated to cost R4.6 billion. A ten percent inflation rate for labor and materials adds dramatically to the cost in the long term.

Factoring in new development within the metropolitan and other urban areas the UIIP implementation draft report calculates the following totals:

Figure 7.1 Total Urban Infrastructure Costs, by Service Level, in Rands

	Upgrading	New	Total
Basic Service Level			
Water	471,000,000	145,430,000	616,430,000
Sanitation	935,000,000	222,660,000	1,157,660,000
Electricity	683,000,000	252,960,000	935,960,000
Intermediary Service Level			
Water	730,000,000	224,820,000	975,820,000
Sanitation	1,534,000,000	367,870,000	1,901,870,000
Electricity	2,378,000,000	579,790,000	2,975,790,000
Full Service Level			
Water	1,568,000,000	283,050,000	1,851,050,000
Sanitation	3,620,000,000	588,150,000	4,208,150,000
Electricity	5,129,000,000	802,990,000	5,931,990,000

The total cost for water, sanitation, and electricity for the full service option in the metropolitan and other urban areas is therefore estimated at just under R11 billion.

There is wide variation in the cost of providing the three basic services, with sanitation generally being the most costly in the metropolitan and other urban areas. For example, it is

estimated that the costs of providing services to those areas at the basic, the intermediary, and the full service level are as follows:

Figure 7.2 Urban Infrastructure Costs per Beneficiary, by Service Level

Basic Service Level	
Water	R151
Sanitation	R248
Electricity	R175
Intermediary Service Level	
Water	R108
Sanitation	R207
Electricity	R295
Full Service Level	
Water	R208
Sanitation	R472
Electricity	R548

Complete data for all or a representative sampling of municipal budgets is not available to show the burdens within municipal budgets for the current provision of utilities, yet there are some analyses from large cities and aggregate data from selected municipalities within regions. A 1990 survey³⁷ of city budgets in the Transvaal show trading services (water and electric) and economic services (cleansing, sewerage, and other) comprising 64.4 percent of the local government budgets, with electricity predominating at 40.2 percent. This electricity cost is more than all general services combined, at 35.6 percent.

In terms of local government service effort, then, the utility portion represents an enormous cost to local taxpayers/customers. And the method for financing services reflects this mix. Municipalities in the survey reported a reliance on user fees and other local income at 81.6 percent of all revenue raised. Revenue raised to pay for general services (those without the ability to raise their own funds, and providing service to the public in general rather than narrowly defined groups of recipients) was represented by the property tax, at a mere 16.7 percent of the total.

³⁷ Somers and Dockel.

7.4 SUBSIDIES

South Africa's governmental budgeting system has been plagued by what the World Bank describes as *ad hoc* financing. In the past there has been no rational method for transferring funds downward from the central government. Subsidies have been distributed based on short-term needs and to make up deficits at the local level. The World Bank, in uncharacteristically blunt terms, states that the practice of intergovernmental transfers will need to be continued indefinitely, as it is critical to "the sustainability and accountability of government as a whole in South Africa. Central transfers will have to play a substantial role in alleviating poverty and financing redistribution, promote economic growth and efficiency, and foster accountability." In the World Bank's view, the current transfer arrangements are typically made in the milieu of "back room deal making".³⁸

The issue of subsidies is central to the future fiscal relationship among the tiers of government. At present the national government passes funds downward to municipalities and Regional Service Councils both for the purchase of bulk services (water and electricity) and for reticulation.

7.5 FEE STRUCTURES

Fees, or tariffs, represent a very large portion of local revenues in South Africa's municipalities. A recent estimate of local revenue nationwide has the sale of electricity, at R9.5 billion, making up 42 percent of the total, at R22.5 billion.³⁹ In some municipalities, the sale of electricity makes up 60 percent of revenue.

In general, water and electricity departments within all but the former black townships have consistently produced surpluses in their operating budgets, and by action of local councils, have given over significant amounts to support general programs carried out by the various departments of local government. Water and electricity finances are "ringfenced", or isolated from the funds of other departments. However, there is a longstanding practice in South Africa of transferring over the trading services surpluses to support some of those activities which otherwise would be supported by the property tax.

There is a strong argument that since the trading services run surpluses and supplant the property tax to a great extent, water and electric rates are too high and the property tax is underused. Local officials describe a property taxation system that is not fully developed, and believe that when all property is rated (assessed) the property tax yield will increase

³⁸ World Bank Intergovernmental Fiscal Mission, 1994, aide memoire.

³⁹ Andrew Boraine.

significantly and property tax rates will not rise. In this way the property tax will take on a more prominent role as a revenue source in almost a "painless", or politically acceptable, manner.

As to sewerage, that activity is typically not set up as a trading service, and surpluses are not sought. Typically there is a charge for sewerage which is treated as a separate revenue from general revenues, with surpluses or deficits being corrected by adjustments in the rate.

No comprehensive information was found to indicate the breakdown of flat versus stepped water and electric rates (see discussion of lifeline rates below). Under the stepped rate system the first block of service, say 5 or 10 kiloliters of water per household per month, is sold at or below its cost of production. The next block is sold at or above its cost, and the highest block is sold at a rate far in excess of its cost.

The prime rationale for having a stepped rate, and in particular a lifeline rate, is that potable water is a necessity that must be made affordable to all citizens. If it is sold to all housing units at its true cost of production, then massive non-payment will result in the poorer areas. This has happened in South Africa, where a significant portion of the population not only cannot afford to pay at or anywhere near actual cost.⁴⁰

As local governments consolidate and put former white and former black township water customers on the same rate base, particular attention will be given to providing affordable service to poorer areas, with higher blocks making up losses in the below-cost block. Most local officials stress the need to make the rate for the below-cost block the same for all customers, in that giving preferential rates in certain neighborhoods would be perceived as too high a level of cross-subsidization.

7.6 TARIFFS, FINANCIAL MANAGEMENT, AND CROSS-SUBSIDIZATION

In theory, tariffs for utility services should be structured so that total collections cover all the assigned costs. In the case of South Africa, the costs of reticulation and operations and maintenance are included in water rates, and where municipalities are charged with providing capital facilities such as filtering systems, principal and interest on loans are included. Such tariff schemes should include the pricing of utility services at levels that are affordable and therefore bring in revenues at close to 100 percent of billings.

Such is not the case in South Africa, where political and social issues have combined with poverty to create a culture of non-payment of utility bills. In many jurisdictions the local billing authorities have foregone billing for water in the former black townships, and will

⁴⁰ In any case, many believe that water should be a free commodity supplied by government.

continue to go without whatever revenue could have been brought in, until a tariff system is put into place which has a high likelihood of breaking even in cost and which will be perceived by all economic classes as fair.

Two major methods are being considered, and in some cases being implemented, to bridge the period of economic adjustment for South Africa. At present the condition is one of low revenue and taxation yield from the former black townships, due in most part to the inability to pay the actual cost of service provision, but also unwillingness to pay due to the perception that services are not being provided at the same level as in wealthy areas. This has led to massive boycotts and general disregard for billing authorities.

The first method is the lifeline tariff, within which there are differing rates of payment for services. The lifeline consists of a tariff for the first block of service which is below the cost of providing the service. There is no attempt to recover costs through the implementation of the lifeline tariff, but rather to provide the basic amount of service necessary to sustain a household at a price that can be paid by all economic segments of the community.

In theory this low tariff would be paid by all customers for the first increment, or subsistence amount of service. In the case of water, 5,000 liters per month is considered the amount needed to sustain a household, and the White Paper on water and sanitation decrees that no tariff for the first 5,000 liters should be set at a rate which exceeds the operations and maintenance cost. Therefore there can be, in theory, some cost recovery at the lifeline level, but in reality the opportunity to recover cost is at the next tariff tier(s), where tariff levels can be set at well above the cost of providing water.

In that water consumption by the largely white suburban communities is roughly triple that of former black townships, per family, the lifeline system shifts the payment burden to whites through cross-subsidization based on consumption. A scheme of this type being considered by Port Elizabeth, if implemented, would appear as follows:

Figure 7.3 Household Yield Projected for Port Elizabeth, Block Water Tariffs

Water Consumption (liters/month)	Rate in Rands	Monthly Yield per Household (Rands)
0-5,000	0.8	4.0
5,001-15,000	1.6	20.0
15,001-30,000	2.7	60.5

Therefore, in Port Elizabeth and cities with similar consumption patterns and economic class ratios, the water utility can break even on its operations and maintenance cost through

stepped up tariffs for levels of consumption above subsistence. The ratios of the two higher tariffs to the lower (lifeline) tariff are 2 and 2.75 respectively. This applies to the Port Elizabeth situation, where 60 percent of the population consumes in excess of 15,000 liters of water per month.

In this case only the current operations and maintenance cost is considered, but in the future, should capital costs arise which will need to be recovered at least in part through tariffs, the structure could be subject to great swings. For example, the need to purify river water used in Port Elizabeth has raised the cost of water production radically. R32 million, or 40 percent of Port Elizabeth's water department budget is for interest and redemption, or paying off capital costs. Prior to the need to bear such costs the system was showing a budget surplus. Now the rates have nearly reached the point of public resistance, up 15 percent last year in Port Elizabeth.

Nor is there a great capacity to raise tariffs on industry and commercial activities to cover escalating costs of providing utility services, or to lessen cross-subsidization among the economic classes. In that South Africa is trying mightily to expand its export business worldwide, any increases in the price of goods due to utility costs will have a negative effect on South Africa's competitive position in international markets.

The use of the lifeline tariff, in combination with stepped tariffs which recover costs above the lifeline level, is one way to put cross-subsidization to use in a systematic way, subject to limitations. While the economic justice of such an approach calls for its broad application, its use also contributes to the creation of a culture of payment to replace widespread non-payment of utility bills nationwide. In order to bring about such a change in habits and the public's level of trust in government, it will be necessary to set up stepped tariff systems which are perceived as fair to all as the economic base of former black townships is developed to the point of yielding significant taxes and fees.

In addition to the lifeline/stepped tariff system, the prepayment programs which hold out the possibility of greatly increased revenue bear examination. One of these, the use of energy dispensers, is most promising. Under this arrangement a device is placed in the household which controls the amount of electricity that will be dispensed over a given period. The customer pays in advance for a certain amount of electricity via the purchase of tokens or entering coded numbers into the dispenser. In this way the consumer chooses the level of service he wants for a given time period and pays for it in advance. This system may be used in concert with the lifeline tariff or any other fee schedule, the amount of electricity dispensed depending upon the cost per unit.

Until recently this dispenser system did not work well because of the ease of bypassing the device. Recent technical advances have greatly reduced such tampering, however, with the

introduction of detection equipment that can pinpoint which energy dispensers have been tampered with. Such detection is done at the electric utility headquarters or a field facility.

Collections can also be improved by the consumer paying for the service in advance, and having it cut off for non-payment before the utility is used. This reduces the relatively high investment associated with an automatic prepayment meter, but meets the prepayment policy adopted by several electricity utilities. This approach to prepayment could be used for the basic electricity supply envisaged in the future.

7.7 MUNICIPAL GENERAL SURPLUS

Although municipal trading services are ringfenced, or segregated from other municipal services in the setting of rates and in their budgeting and operation, "profits" from them may legitimately be transferred into municipal general fund budgets and expended for general purposes. South African law now limits the trading service surpluses to run at 10 percent of gross revenues, and yet this contribution to the municipal general fund continues to be a major source of income.

As can be seen in the table below, the nationwide surplus from water service in recent years has been erratic, and yet the surplus from electric service, of much greater magnitude, and despite some fluctuation, remained somewhat stable through 1992.

Figure 7.4 Surpluses on Trading Services in Local Authorities

	Water R million	Percent Change	Electricity R million	Percent Change
1989	184		929	
1990	139	-24.5	1111	19.6
1991	343	146.8	1357	18.1
1992	392	12.5	1298	-04.6

Source: van Ryneveld.

In Port Elizabeth, for example, R35 million was transferred from the electric fund to the general fund this year, representing an amount equal to 26 percent of the real estate tax. The city has developed a dependency on this source of revenue, as have others in South Africa.

To remove the influx of electric department surplus funds and give it, say, to regional authority, would cause an increase in the real estate tax rate of 30 percent.⁴¹

The most likely way to avoid such a massive, unacceptable increase in the property tax is to find economies in the administration of local government. This cutback management has been successfully carried out in other countries, and is seriously being contemplated in South African cities where massive restructuring will be needed, as the surplus is transferred to other entities or used up in the provision of utility services to deprived areas.

The removal of trading service surpluses from the municipal budget would cause a 15 percent increase in the property tax, or a like amount in budget cuts, or some combination of the two.⁴² Cape Town would endure such a change much more easily than some other cities, especially those in the Transvaal.

The question of hidden transfers is one that has been raised by critics of the current system. This involves the possible "engineering" of surplus amounts by artificially lowering the amounts spent by trading services in providing administrative or material support to other departments of local government. In this way the trading department surplus is made to appear higher and therefore more funds can be transferred to the general government.

This may happen in some jurisdictions, but there are safeguards built into the country's municipal accounting systems. For example, the transactions in question are done in a transparent manner in the larger cities, and although not easily understood by the average citizen, the information is capable of being found and interpreted by financial professionals.⁴³

The extensive use of interdepartmental and interfund transfers within municipal governments accounts for services departments provide to one another.⁴⁴ For example, in Cape Town the electric department uses the shops of other departments to have mechanical work done. A charge is made against the electric department by the department owning the shop and

⁴¹ P. Wilson, Port Elizabeth.

⁴² E. Landsberg, Cape Town.

⁴³ The Institute of Municipal Treasurers and Accountants has established a "Red Book" of standardized accounts and accounting practices for use in municipalities. While this system of accounting is readily understood by municipal officials using it, there is a great deal of criticism from banking officials, who cite its lack of compatibility with business accounting as a major impediment to the rejuvenation of the municipal bond market.

⁴⁴ E. Landsberg, Cape Town.

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performing the services, and funds are transferred accordingly. Conversely, the electric department from time to time performs services for other departments and the transfer process is reversed. Overall these transfers tend to "wash out" or nullify one another over time, and the overall level of such transfers is in the 5-10 percent range for Cape Town. These transfers are carried out publicly in the large cities, and there are accounting safeguards in place in most jurisdictions. Nonetheless, there is an opportunity for some degree of abuse in those jurisdictions without adequate accounting and management controls. There have been reports in the past that 10 percent surpluses have been artificially stretched to the 25 percent range through creative accounting in some jurisdictions where public scrutiny has not been at a high level.

7.8 FISCAL OVERSIGHT

As important as cross-subsidization is to the short-term goals of the RDP in providing utility services to deprived areas, the organization of government and the assignment of roles to various levels and agencies of government are important to the viability of those utilities in the long term. Economies of scale will dictate new governmental arrangements for the provision and distribution of electric power, the primary change to be the widespread use of regional authorities to distribute electricity and collect the revenues.⁴⁵ The ten authorities now supplying power in the Cape Town area will be reduced to two or three through a process of rationalization.

One key to the success of consolidations will be the oversight function performed by the National Electrical Control Board, which will have broad licensing powers for local or regional electricity providers. It will exercise its licensing powers through a set of objective criteria, determining which entities will be capable of supplying electricity most economically and dependably.

Eskom produces 98 percent of the electric power in South Africa, generating a 20 percent surplus and having adequate capacity to supply all customers at peak load. Thus no new generating capacity will be needed to supply currently deprived areas. The larger question is which entity will distribute power in locations not now served, and if Eskom is to increase its role significantly as result, at the expense of local authorities, what will be the implications for the country as a whole?

Since the board of directors of Eskom is appointed by the Ministry of Minerals and Energy Affairs, rather than elected, it is far removed from public accountability and can take on

⁴⁵ F. van der Velde, Cape Town.

some of the characteristics of a monopoly. The government has been prudent in entrusting the NECB with franchising powers based upon a set of objective criteria.⁴⁶

7.9 INFRASTRUCTURE FINANCING MECHANISMS

No single source of revenue is going to fund the massive amount of infrastructure upgrading and new construction that will be necessary over the next several years to meet substantially the goals of the RDP. There are indeed many competing needs in the social, educational, and economic areas, and yet the infrastructure needs of the country have a competitive advantage over many because of existence of tariffs as a method of paying for at least the operations and maintenance portion of infrastructure cost. And electricity in particular has an advantage due to the vast surplus of generating capacity and peak power coverage.

Stated in its very simplest terms, the creation and expansion of infrastructure can be paid for through cross-subsidization to the limit that the public will bear, an increased reliance on the use of bonded debt as the municipal bond market re-emerges, the use of broad-based national taxes and savings to the extent that they will be attainable politically, and to a lesser extent, the use of special programs and foreign donations as kick start mechanisms.

Central to the success of all these approaches will be the development of a culture of payment that sustains itself and grows as the deprived portion of the population develops economically and yields very significant tax and fee revenue.

The UIIP draft implementation framework document makes note of the wide disparity among local authorities to provide infrastructure services based upon demand from their customer bases. That is, in general the former black local authorities lack the human and financial resources to provide service, and some white local authorities not only are able to satisfy the utility demands of their own customers, but they are able to contract to provide utility services, bulk water for example, to neighboring jurisdictions. Moreover, the parastatals in some cases provide services directly to households, electricity supply in Soweto being a prime example.

The UIIP sets out a financing plan for metropolitan and other urban infrastructure that includes drainage and roads in addition to water, sewerage, all bulk infrastructure, and electricity. The projections in that plan are based on the assumption that new construction will be financed by borrowing in the bond market or through a revolving loan arrangement. This assumption of long-term financing is also central to the World Bank approach, discussed below.

⁴⁶ Ibid.

The following is a discussion of financing options laid out in the UIIP implementation draft and as derived from South African municipal policy makers. The Kimberley experience is used as illustrative of how a municipality can make progress with its own funds and a progressive plan for extending infrastructure, given favorable conditions.

7.9.1 Mechanism 1 - Tax and Tariff the Former White Local Authorities of the Metropolitan Areas

The UIIP demonstrates that metropolitan areas would experience a large increase in all taxes and charges to provide service increases, at 3 percent per year for seven years for the full service scenario. The non-trading services would have a 28 percent increase but the trading services would have only a 9 percent increase, for a blended increase of 20 percent. The basic service increase would be 7 percent and 2 percent respectively, blended at 8 percent; the intermediate scenario increase would be 9 percent and 4 percent respectively, blended at 10 percent.

Whether these are unacceptably large increases depends upon the individual city or metropolitan area's required increase in rates, and the overall financial condition of the municipality. A steady increase of about 3 percent for a finite period of time would not appear to be onerous for a city or metropolitan area which enjoys good economic health and does not have other overwhelming service needs.

No doubt the 3 percent growth in fees and taxes would pose major problems in certain cities which are already experiencing fiscal stress, however. The Nelspruit region, for example, would suffer a 63 percent increase in all taxes and fees for seven years under the full service scenario, and even with RDP funding one half the improvements, the impact would be 42 percent, including a 69 percent increase in the real estate tax. The basic services scenario would still impact the subregion a presumably unacceptable 20 percent. Combining any of these spending program scenarios with the unmet social, educational, and job training needs of the subregion would create an extreme drain on local resources.

Metropolitan areas could absorb the cost of full service at the politically unpopular cost of increases in the property tax and tariffs. Moreover, having a 50 percent capital grant from the RDP would mitigate the expense to within much more reasonable bounds, at 13 percent for the full standard, 7 percent for the intermediate, and 6 percent for the basic.

Again, instituting a full service standard in the smaller cities is generally not possible because of the lack of economies of scale in the rate base. The standard will need to be lowered or additional outside funding must be found.

RDP 50 percent financing would mitigate the burden in Nelspruit also. The full service scenario there would be a phenomenal 63 percent increase in all taxes and fees for seven

years, with the RDP 50 percent contribution bringing this down to 42 percent, but including a 69 percent increase in the property tax. The basic service provision scenario is still an unacceptable (presumably) 20 percent. Such requirements combined with the needs for education, social services, etc. puts a tremendous drain on the property tax and rate base.

7.9.2 Mechanism 2 - Better Collection in Black Areas

The prospect is not good for major tariff yields in the former black townships over the next several years. At this time only R200 million per year is being collected in fees in the former black townships versus R12 billion in the former WLAs. Most income projections therefore assume no increase or little increase in fee yield from the former BLAs for the duration of infrastructure upgrading and extension.⁴⁷

The prospects for higher yields in those areas will improve substantially as certain structural changes are made and as local government earns credibility. Moreover, as community participation and consumer education programs take hold, voluntary payment will increase. The UIIP document cites the following as the major factors leading to a much higher payment rate:

- the election of new councils in newly-configured municipalities;
- the creation of municipal service delivery "track records" as utilities come on line in the deprived areas;
- general economic growth in a currently weak economy;
- success of community participation programs;
- credibility of those agencies of government which assume the responsibility of providing utility services; and
- a much better understanding of the mechanics of and equities in the stepped tariff scheme.

7.9.3 Mechanism 3 - Continuing Payment of Intergovernmental Grants

There is widespread belief among municipal officials that national subsidies for local utilities will be phased out as municipalities bring in more own source revenues, primarily through increased collections and tax and fee yields. Such a reduction is already evident, as projected subsidies for bulk water are not being distributed fully to some cities. As the

⁴⁷ Eskom's collection experience in improving; see 5.4.3.

boycott movement has subsided, the need for national support of local service purchases has diminished to some extent.

The trend toward a reduction in bridging finance to support infrastructure activities within the former BLAs continues. Despite a slight rise in such payments in 1993/94, bridging finance and grants have declined to pre-1991 levels, with inflation factored in:

Figure 7.5 Bridging Finance and Intergovernmental Grants Paid to BLAs Since 1987

Year	Rand millions
1987/88	373.8
1988/89	460.3
1989/90	518.8
1990/91	644.0
1991/92	903.7
1992/93	791.8
1993/94	1,115.8
1994/95	709.9

Source: van Ryneveld

Note: The 1993/94 figure includes a R160 million set aside to write off the bad debts of the BLAs.

Despite the various educational, social and health needs of South Africa, many local officials believe that national infrastructure subsidies should continue as long as there is a backlog in reticulation and until bulk facilities are brought up to date. There is a prevalent attitude that the elimination of the backlog is a national problem in every respect, and that various funding schemes of the two tiers of government should create a "zero sum" situation until reticulation is provided and local utility companies approach full cost recovery.

There are arguments that should the national government provide more funding to localities in the form of increased tax revenue sharing, say for motor fuel or a piggyback tax on income, then at some point the utility rates must go down. Moreover, while it is widely recognized that the local property tax is currently underutilized, to raise it drastically at this time would be politically unacceptable.

Some local officials believe that as the economy grows and housing construction increases, the property tax will become a priority for local governments to maximize. Through general growth in the tax base and the refinement of rating and collection techniques by local officials, it is anticipated that property tax yields will increase substantially while the tax rates themselves will remain nearly constant. There is optimism in Kimberley; only one half of the city's 60,000 housing units are assessed now, and doubling the assessing effort alone will substantially increase tax yields.⁴⁸ The yield will not be doubled by doing this, however, because the bulk of units yet to be assessed are of very low value.

In addition to the uncertainty of future property tax yields, a major argument for continuing national subsidies is the likelihood of a tradeoff between new reticulation and maintenance of the existing utility systems. Deferred maintenance is a convenient method for politicians to provide short-term benefits at the price of having future office holders bear the burden of repairing facilities which were not properly maintained for several years.

7.9.4 Long-Term Debt Financing

In recent years, in the absence of a viable municipal bond market, municipalities have substituted a combination of short-term financial vehicles for the most reliable and financially justifiable method -- the issuance of municipal bonds based upon the good faith and credit of the municipality. The merits of local borrowing for capital costs are well known, among them the spreading out of costs of "lumpy" investments, the equity of paying for long term improvements by those who consume the improvements over long periods of time, and the predictability of repayment based on user fees rather than changeable national subsidies.

Views differ widely on the best method(s) for reinstating municipal debt financing, however. The main problem lies in the uneven nature of the local economies across the country, and in the assumption that those individual municipalities which will suffer from an inability to secure credit through normal channels will have to access the bond market indirectly. Such indirect financing will take the form of collective borrowing and/or continued national government involvement, including loan guarantees and pass-through financing (national borrowing power used to fund grants or low/no interest loans to municipalities).

It would be unwise to vest too much infrastructure financial power, including the power to incur debt, in the central government. Not only would this be counter to the current trend toward fiscal autonomy and accountability at the lowest feasible levels of governance, but the assignment of bond issuance authority at only the national and provincial levels would prevent the formation of strong decentralized institutions. The perceived need to deny powers to untried levels of government would in the view of the World Bank, create a

⁴⁸ G. Berner, Kimberley.

"decentralization trap" wherein old, inefficient mechanisms for creating infrastructure would remain in place.

For the sake of avoiding the continuation of centralized institutions which by definition are less accountable and efficient than a rejuvenated local administrative structure, direct access to financial markets should be provided at all levels to those municipalities able to meet the prerequisites for borrowing and for managing debt.

7.9.5 Own Source Financing

Once the backlogs are eliminated, utilities are likely to run on a full cost recovery basis. Recognizing the need for continuing subsidies, grants, and special programs for the short term, there is a potentially large source of funds in the form of efficiencies, to be found both in improved management and in systematic planning at the local level.

A prime example of systematic capital planning effort is the City of Kimberley's approach to infrastructure provision to its disadvantaged areas. While it should be noted that Kimberley's housing and infrastructure problems are not as severe as in the metropolitan areas, and consolidation of the townships in Kimberley took place some years ago, the principles involved in the Kimberley approach are certainly applicable in other locales.

Central to the Kimberley approach is a Capital Improvement Plan which has been in effect for 15 years, subject to alteration each year. In this plan the capital needs of the city are set out in order of importance based on criteria which are for the most part objective. Point scores are assigned to proposed projects based on such criteria as the project's necessity for health or safety reasons, the ability of the project to produce revenue for the city, its necessity as decreed by law, or its potential for benefiting tourism.

Kimberley's overall capital program emphasizes the provision of decent housing and infrastructure, and has been based on the assumption that its own funds will be used to supplement national grants and special programs, with a goal of 1,000 units per year. Underlying that assumption has been a R5 million surplus until recent years, when necessity has dictated that adjustments in tax and rate collection policies should begin to form a more solid local revenue generation situation as national grants and programs become less predictable.

Consideration has been given to what the tolerable level of property tax increase is, and the City Council determined it to be equal to the rate of general inflation. Nonetheless, the city has kept its property tax rate increases at only 80 percent of inflation for the last four years.

Kimberley decided some time ago that the lifeline tariff would be a detriment to city finances in the long term, and therefore has adopted a tariff system which in itself does not cause a

great deal of cross-subsidization. Instead the city has adopted a system for discounting the real estate tax, the sewerage service, and solid waste collection, on a sliding scale for low-income residents.

The culture of payment is enhanced by the use of hardship abatements rather than a policy of non-collection. Through various collection techniques and the development of a solid payment ethic, collection of utility tariffs will be 80 percent in the disadvantaged areas within several years.⁴⁹

The overall philosophy of city government is that the housing program will be successful because of systematic planning and execution, and because an effort has been made to consult with and inform civic groups as to program options and costs, and the benefits that will be apparent to all as the program proceeds over several budget cycles.

Coupled with this approach is the conscious effort, through discounts and other methods, to help low-income residents gain relief in the areas of service where they have little or no control (general property rate, trash collection and sewerage fees), and to require fair share payments where some control is present (water and electricity). Abatements are used to put the burden of proof on the resident for inability to pay. This causes positive pressure to pay, especially in that the abatement scheme is coupled with a vigorous collection program.

7.10 DETERMINANTS OF PREFERENCES FOR INFRASTRUCTURE STANDARDS AND SERVICE LEVELS, FEE LEVELS AND PAYMENTS

A proposed amendment to the Water Act would have choice of water service level made with the input of a Local Water Committee, formed as an interim body for service provision, and established by the Minister of Water Affairs and Forestry. Such a proposal is based upon the well-established practice in other countries of providing water service at the level that is most acceptable to those customers who have had minimal or no service previously. If too high a level of service at a high cost is provided the customers may feel that the service is not affordable and not pay the tariffs. If the level of service is too low the customers may feel that they are not getting the same treatment as upper-income customers, and may balk at paying even a low tariff.

The scheme outlined in the Water Supply and Sanitation Policy White Paper calls for the election of Local Water Committees as interim measures for planning and providing water services. It is envisioned that these committees will establish their competence with the training assistance and oversight of the Ministry of Water Affairs and Forestry. Jurisdictions will include unserved areas, and the LWCs will presumably become eligible for planning

⁴⁹ G. Berner, Kimberley.

grants, and ultimately, construction grants through the Ministry. In procedures yet to be determined, these LWCs will eventually blend into the local government structure.

The White Paper stresses that LWCs will be given assistance, and not direction, by the Ministry of Water Affairs and Forestry. LWCs will be empowered as non-profit units of government to carry on a range of water and sanitation activities, including the ownership and maintenance of utilities and the choice of service levels. The LWCs will be established by the Ministry of Water Affairs and Forestry, but will be governed by regulations that will be in large part determined by the Department of Provincial Affairs and Constitutional Development and the Provincial MECs for Local Government, as well as representatives of community based organizations.

7.11 RDP FINANCIAL CHANNELS

Municipalities are using a combination of funding sources to try to eliminate their backlogs of decent housing and infrastructure reticulation. Given the insufficiency of any one program to fund all "above ground" and "below ground" improvements, cities like Port Elizabeth assign portions of their capital budgets for infrastructure improvements in anticipation of permanent national funding programs. Using a combination of local general and water funds and RDP funds to developers, Port Elizabeth is front-ending a project for low-income residents, who qualify for indirect subsidies as follows:

Income	Amount of Subsidy
R0-800/month	R 15,000
801-1,500	12,500
1,501-2,500	9,500
2,501-3,500	5,000

Under a complex and detailed plan submitted by the developer, the city approves projects for RDP funding. There are variations on the ways in which funds are spent. In some locales the developer puts in all utilities except electrical service, and in some locales the municipality puts in infrastructure with its own funds, freeing RDP funds for housing construction.

The RDP housing program currently is funded at R700 million, and is projected to double each year for the next three years or more. While these sums are not insignificant, they represent a fraction of the amount needed to eliminate the backlogs.

There is criticism of this highly visible but underfunded approach. Some cite the disruptive nature of the RDP grants system, in that it funds the highly visible large cities, and does not attack the problems in the secondary and smaller cities. Moreover, critics believe that the *ad hoc* nature of the program in some ways pre-empts the categorical grant programs of the various line ministries.

In a broader sense the RDP is intended to allow local governments to leverage funds, including donations, in those municipalities which can develop an expertise in planning and carrying out housing and infrastructure development programs. The national government has formed a committee to study the "once off" (non-recurring) programs which might supplement RDP annual funding, and to consider the use of proceeds from the sale of state assets and gambling to supplement the current practice of devoting RDP and municipal own source funds to these activities.

In the long term, the intent of the national government is to phase itself out of funding the local governments except through provincial pass-through programs which will subsidize only the poorest areas in any major amounts. Through savings in municipal budgets and the assignment of infrastructure to the highest level of priority for local government, national policy makers hope that the national government will cease to be a major source of funding for local infrastructure distribution in the next several years.

CHAPTER 8 ENVIRONMENTAL CONSIDERATIONS

8.1 INTRODUCTION

The White Paper on Reconstruction and Development included, as part of the goals for the future, the creation of "a sustainable and environmentally friendly growth and development path." This goal supports the right defined in the interim Constitution to an environment which is not detrimental to a person's health or well-being.

It is generally accepted that the purpose of providing clean water, sanitation and electricity to urban communities is to improve the living environment, in particular the health and safety of the people. However, the provision or upgrading of infrastructure must also take into account two related aspects of environmental impact, namely:

- the concentration of environmental impact by a specific development; and
- damage to species, habitats, ecosystems and unique landforms.

Environmental considerations are incorporated within the procedures of integrated environmental management.

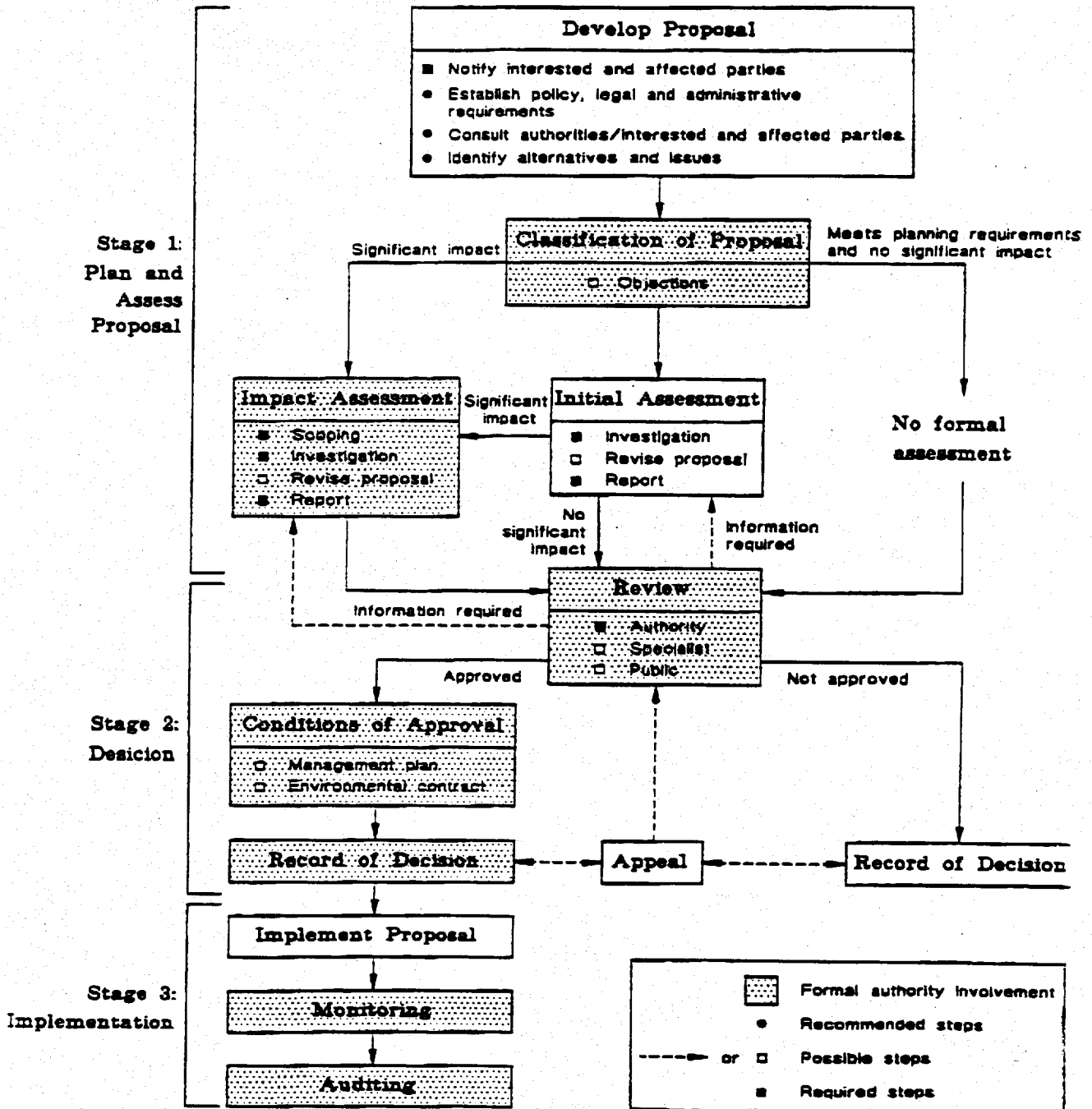
8.2 INTEGRATED ENVIRONMENTAL MANAGEMENT

The process of integrated environmental management (IEM) was first published by the Department of Environmental Affairs in 1989. A revised edition of IEM procedure was published in 1992.

Many authorities, developers and consultants have subscribed to the principles of IEM. However, at this stage, environmental input in project development in South Africa generally ends after the environmental impact assessment (EIA) or similar study has been completed, and the project is approved for implementation. The measures recommended in the EIA simply may not be incorporated in the project design and construction. Legislation does not provide for compulsory application of IEM, although it is widely expected that regulations for greater environmental control will be introduced in the future.

The present IEM procedure (Figure 8.1, taken from the IEM guidelines) recognizes three stages in project development: planning and assessing, decision and implementation.

Figure 8.1 The Integrated Environmental Management Procedure



Planning and assessment of a proposed project should be carried out in conjunction with interested and affected parties and local authorities. The expected environmental impact is classified: significant, uncertain or insignificant, and respectively a full, preliminary or no EIA carried out.

The second stage of IEM is the decision making process. After appropriate consultation with the public and/or specialists, the relevant authority decides whether or not to improve the development proposal. If approval is granted, it is usually subject to specified conditions. The authority may call for an environmental management plan (EMP).

IEM makes provision for environmental monitoring and auditing during project implementation or construction to ensure that the details of the EMP are implemented on site and the controls are operating satisfactorily. Until recently, few EMPs have been called for by the authorities (with the exception of some major roads projects), so there is relatively little experience in the country of this aspect.

EIAs and EMPs are required on some urban infrastructure projects and are being implemented at present. Greater application of IEM to urban infrastructure provision should be expected in the future.

Draft regulations published in March 1994⁵⁰ identified as one of the activities requiring environmental assessment the development of any infrastructural project with a development capital in excess of R10 million including projects financed by means of foreign aid capital.

The White Paper on Water Supply and Sanitation Policy (November 1994) proposes guidelines which will require for all developments, irrespective of size, the application of single EIA procedures.

None of the proposed policies have the force of regulations. At the same time that progress is being made to strengthen the protection of the environment, some proposals have also been made to set aside the requirements of the IEM process, in order to reduce or avoid delays in developing new areas and facilities. Greater clarity will be achieved only when regulations have been adopted.

8.3 INSTITUTIONAL CAPACITY

Environmental considerations are mainly the responsibility of the Department of Environmental Affairs and Tourism. This department has been responsible for drafting the

⁵⁰ Government Gazette, 4 March 1994, Notice 172 of 1994.

IEM procedures and proposed regulations. However, the department is mostly involved in preparing policy.

Much of the implementation of an environmental policy is the responsibility of other departments of Central Government, such as Water Affairs and Forestry, or of Local Government in the provision of services to residents. In general, the capacity and experience of local authorities to interpret and enforce the processes of IEM are severely limited by the lack of regulations and a shortage of experienced personnel.

Both the Departments of Environmental Affairs and Tourism and Water Affairs and Forestry have proposed that the private sector and NGOs have a major role in serving the public sector. The proposed regulations under the Environment Conservation Act require environmental impact reports to be prepared by certified consultants. At this stage, though, the capacity of consultants and contractors to advise and manage EIAs, EMPs and their controls is very limited because of the lack of experience.

8.4 IMPACT OF URBAN INFRASTRUCTURE ON ENVIRONMENT

The development of urban infrastructure impacts the environment in many ways:

- **Social environment:** urbanization, increased population concentration, community facilities, viability of economic activities, positive and negative impacts on community and individual health; and
- **Physical environment:** increase in stormwater run-off and risk of flooding, development in flood plains, visual amenity, increased mobility derived from improved transport routes. The following sections identify elements of water, sewerage and electricity development which have environmental impact.

8.4.1 Negative Impacts

Electricity: the provision of electricity in South Africa, as in most countries, was initially by overhead lines. With technological development, underground systems offered networks lower exposure to the weather and other external influences, increasing reliability and, at the same time, reducing the visual impact of development.

The economics of supplying low-income (and relatively low energy use) consumers has led to the re-adoption of overhead systems for most electrification projects in South Africa.

Obviously the visual impact is much greater than for an underground system. The use of insulated overhead conductors for the low voltage lines does contribute, however, to higher reliability and safety than generally derived from bare overhead lines.

The introduction of electricity supply to an existing community is known to cause negative impacts on certain existing business patterns, creating competition for suppliers of alternative energy. The contrast between the large institutional capacity of the electricity utility and the small businesses which characterize the alternative energy suppliers is a compounding factor in this competition.

Where electricity is introduced as a competitor to fuelwood, two issues of the social environment have to be considered. Fuelwood collection is usually carried out by women, often requiring groups to make long journeys on foot into surrounding areas. Electricity supply makes such activity unnecessary and removes the opportunity for social interaction, which may not be replaced by group activity in the time which becomes available to the women. Further, where fuelwood is gathered, not purchased, conversion to electricity is accompanied by a change in responsibility for energy supply from the gatherer to participants in the cash economy, thus changing social roles in the family.

Concerns have been expressed worldwide about possible detrimental affects of magnetic fields associated with electric current on health. It has not yet been possible to establish a reliable correlation, but the impact is shown to be weak compared with other risks characteristic of poorly developed communities in South Africa.

Water Supply: Different users in South Africa are increasingly having to compete for limited water resources. The DWAF has stated that a culture of conservation and demand management is needed to reduce water usage. Excessive water consumption will degrade water quality and availability for other uses.

Sewerage: Waterborne sewerage to central treatment works is widely accepted to be the highest quality system. However, both the capital and operating costs are higher than alternatives based on VIP latrines or other on-site sewage treatment, so these alternatives must be considered for widespread application in South Africa.

On-site sewage treatment is not appropriate in areas subject to flooding or high water table. In some cases, where the geological structure and topology cause seepage to reach the surface within a short distance, or to pollute the water supply, on-site sewerage can have an extremely negative environmental impact.

Central sewage treatment works also have negative environmental impacts, taking space which could be used for other purposes and, if of inadequate capacity, polluting the air and outfall/river into which the works discharge. In some coastal areas waterborne sewage is

discharged directly into the sea, negatively impacting seafood collection, recreation and tourism.

8.4.2 Positive Impacts

- Training and employment during construction. Stimulation of economic activity based on the new resource.
- Improved health through easy access to clean water, reduction of exposure to faecal infection cycle, reduction in the household environment of combustion fuels which by giving off water vapor and particulates increase the incidence of TB, increased safety compared with the use of combustible fuels.
- Stimulation of education.
- Better use of existing bulk facilities, e.g., water treatment work, resulting in greater financial efficiency.

There have been many studies on the positive impacts of improved water quality and sanitation, and the supply of electricity. One, for example, suggests a savings of R800 million within the health sector, associated with the accelerated national electrification program (mainly related to reductions in respiratory disease, burns, and paraffin poisoning).⁵¹ Few studies are as rigorous in the evaluation of control groups and the calculation of economic benefits. The problems arise from the multiple co-factors and the complexity of "improved quality of life", encompassing health, safety, employment, personal development and other non-financial factors. The quantification of positive impacts also depends on the existing environment of a specific community.

8.5 APPLICATION TO URBAN DEVELOPMENT

The application of IEM procedures to urban development should take into account that the general objective of providing services is to improve the quality of life and that water, sanitation and electricity generally make a positive contribution to a community. Therefore a simplified EIA should identify specific risks and hazards likely to arise because of unusual aspects of a particular site or community. For example, it may examine the suitability or unacceptability of different levels of service in the context of overall policy and a proposed development.

⁵¹ Electrification and Health: A South African Perspective. Medical Research Council, Community Health Research Group. Cape Town, 1995.

It will be necessary to build institutional capacity at all levels and in both the public and private sectors before environmental considerations can be integrated properly with development.

Particular attention will be needed to the preparation of specific guidelines for evaluation of the environmental impact of urban development. Regulations may have to be formulated in terms of the number of people affected as well as in the capital cost of the infrastructure project. An appropriate balance will need to be reached between such controls and the provision of infrastructure and the development of communities.

It is important to recognize that most communities with a low level of service provision will not understand many of the issues of environmental management. Therefore, it must be expected that community based work will be needed in environmental issues as well as physical and financial issues.

CHAPTER 9 EMPLOYMENT GENERATION

9.1 EMPLOYMENT OPPORTUNITIES ARISING FROM THE INSTALLATION OF INFRASTRUCTURE

The South African civil engineering industry has followed very much the same course as its western counterparts with regard to mechanization, and as a result large investments were made in plant and related technologies which have been favored over labor-intensive methods. Mechanization has facilitated civil engineering construction projects, and in particular, the installation of infrastructure, to the extent that the installation of infrastructure is often planned and designed around plant availability. As a result little attention was given to the promotion of labor-intensive or labor-based projects,⁵² nor to the development of small contractors from disadvantaged communities. Consequently infrastructure installation projects have not in the past been perceived as opportunities to provide jobs to any significant degree. There is however a drive to critically revise engineering projects with the intention of creating more job opportunities thereby providing some relief to the unemployed. At the same time, the ever rising cost of construction plant and the ever increasing levels of poverty and underemployment have caused the industry to reexamine its policy of mechanization.⁵³ Development and funding agencies such as the Development Bank of Southern Africa have also assisted in this process to the extent that they have encouraged the industry to make more use of labor by way of making funds available for labor-intensive and labor-based type projects.

Labor-intensive and labor-based construction practices are now being used in job creation programs and to reduce the barriers which prevented small-scale entrepreneurs from participating in the construction industry. These practices are used both to alleviate poverty and for affirmative action purposes.⁵⁴ Current examples of projects which aim to promote the development of contractors and/or labor-intensive practices include: Soweto's Contractor Development Programme, the RSA/KwaZulu Development Project, and the public-sector funded Public Works Programme. In a report published by the CSIR the following

⁵² Labor-intensive construction implies the use of as much labor as possible, usually through substituting people for machines. Labor-based construction aims, in addition, to change the technology employed so as to make it appropriate for manual construction methods with an emphasis on training and development, and mobilizing and utilizing local resources.

⁵³ Watermeyer and Band, 1994.

⁵⁴ Ibid.

considerations justify the implementation of labor-based construction projects in South Africa:⁵⁵

- unemployment relief;
- retention of capital within communities;
- transfer of skills and stimulation of entrepreneurs; and
- promotion of community ownership of public works.

In addition, it is suggested that if a community is involved with the building of a particular scheme, it is more likely to identify potential design problems at an early stage and in so doing improve the chance that the final scheme will satisfy the real needs of the people. Finally, it has also been recognized that without community involvement, certain projects stand no chance of succeeding due to the so called "township factors", i.e., unrest, theft, hijackings and sabotage.

In order to be truly effective, such projects must achieve more than merely substituting labor for machines, as this only provides employment for a brief period, whereas by building up business, organization and skills, a community can gain human assets and self confidence which can in turn be applied to other economic pursuits. In light of this, Soweto's Contractor Development Programme is important as it embraces both labor-intensive methods and labor-based technologies, as well as encouraging and training the community to participate in the managerial, commercial and administrative aspects of construction. The program increases the labor content of a construction project while at the same time training local entrepreneurs in labor-based construction methods of installing facilities. In so doing, technical, commercial, managerial and administrative skills are developed within the community with a concomitant increase in earning capacity. The result is that the community retains and recycles a significant proportion of the money spent on the project. Local entrepreneurs who from the start are employers in the community, can with the assistance of technical and financial support become full fledged contractors and in this way provide greater earning opportunities for others in the community. The program can thus be described as a job creation program with the potential for sustainability through entrepreneurial development.⁵⁶

The Public Works Programme and the Urban Renewal Projects launched by the government are primarily labor-intensive approaches. The aim of the Public Works Programme is to

⁵⁵ Stills, 1991.

⁵⁶ Watermeyer and Band, 1994.

maximize the job creation potential of all capital projects. All infrastructure projects funded by RDP funds are linked to the Public Works Programme for which an amount of R250 million has been allocated for special community based programs, training and capacity building to provide for long term job prospects. The Urban Renewal projects aim to integrate the provision of infrastructure, housing, community facilities, job creation, environment and recreation facilities.

The viability of implementing labor-intensive and labor-based projects with regard to the installation of infrastructure, also depends to a large extent on the practicality thereof and the particular service in question. In other words, in some cases it may not be easy to use a labor-intensive approach due to the nature of the particular service. In order to determine the latter one has to distinguish between the manufacturing and supply of the materials and the on-site labor to install the materials. An exercise of this nature is demonstrated in Figures 9.1-9.3 below.⁵⁷

Figure 9.1 Services for Erven Constructed Using Conventional Plant-Based Methods, 1992

Service	Level of Service	Units/Erff	Cost/Erff	Man hours/erff		
				Materials	Construction	Total
Water	<ul style="list-style-type: none"> • Class 9 uPVC pipes (63 mm to 200 mm diameters). • Resilient seal gate valves and fire hydrants. • Erf connections and water meters in boxes 	10.0m	R789	5	34	39
Sewer	<ul style="list-style-type: none"> • 100 mm diameter clay sewer pipes. • Manholes and erf connections 	8.4m	R618	7	36	43

Note: An erf is a plot; erven are plots.

⁵⁷ Watermeyer and Band, 1994.

Figure 9.2. Electrification of Erven in Townships (1994)

Item	Average Cost/ Erf including VAT	Average Man Hours/Erf
Ready boards	R 200	13
Prepayment meter	R 320	20
Transformer	R 160	10
Open conductor	R 180	8
Bundle conductor	R 320	11
Air dac	R 190	6
Poles	R 120	6
Hardware	R 160	8
Total for materials	R 1,800	82
Labor for installation	R 500	35
Total	R 2,300	117

Figure 9.3. Man Hours Required for the Provision of Infrastructure for a Township Using Conventional Construction Methods

Service	Estimated Man Hours (percent)		Estimated Total Number of Man Hours/Erf	Cost/Man Hour (in Rand)
	Materials	Site Labor		
Water	13	87	39	20
Sewerage	16	84	43	14
Electricity	70	30	117	20

The figures reveal that with the exception of electricity, the number of man hours involved in actual construction or installation is far greater than for the manufacture and supply of the materials. This implies that labor-intensive projects; can be implemented for the installation of services such as water, sewerage, stormwater and roads, but not to a significant degree for electrification projects; in the case of electricity more time is spent on the manufacturing of the actual equipment as opposed to its installation.

9.2 POST INSTALLATION EFFECTS OF WATER, SANITATION AND ELECTRICITY ON MICRO-ENTERPRISES

This section seeks to highlight the positive effects which services such as water, sanitation and electricity have on micro-enterprises. While some literature exists on the post-installation effects of electricity on small businesses, there is a dearth of literature for water and sanitation.⁵⁸ This is probably due to the fact that electricity has been seen to be of greater importance in the process of development and as a result more research has been conducted in this field. A report issued by the Water Research Commission,⁵⁹ however, provides some useful information from which one can to some extent extrapolate the effects of these services on the development of small businesses.

According to the report there are four principle sources of direct economic gains from water supply and sanitation investments:

- increased efficiency and production of the water supply itself;
- increased production of all goods and services;
- increased private investment, triggered in part by public investment in water supply; and
- increased job creation and employment.

Indirect economic benefits may include improved health conditions, and time saving by individuals and households which releases the time of household members for more productive activities.

There is no doubt that electrification of a community brings with it a wide spectrum of change to the community affected, most of which are positive. The concern here is with the effects of electrification on micro-enterprises within a community. It is widely accepted that electrification, can and does serve to stimulate a significant expansion of small and micro-enterprise. Existing literature on such enterprises indicates that the frequency of micro-

⁵⁸ One study (Ferguson, 1990) suggests that economic growth (including job creation and increased income) are unlikely to occur where municipal infrastructure is provided only to improve health conditions and otherwise promote equity. He cautions that economic programs or other forces must exist in the community in order for improved water supply and sanitation services to actually contribute to employment generation.

⁵⁹ Water and Sanitation in Urban Areas, A Financial and Institutional Review.

enterprises in South Africa is approximately half that in other African countries.⁶⁰ This discrepancy is a result of apartheid policies which imposed a barrage of restrictions preventing the emergence and growth of dynamic African-owned small businesses, the historic dominance of the large corporations in South Africa, and the lack of electricity to these areas. These factors have resulted in a particularly skewed pattern of small enterprise development in South Africa, which are predominantly located in the commercial sector and engage in petty trading activities. On the whole, they have failed to penetrate the manufacturing sectors and they tend to be driven by subsistence rather than by profit motives.⁶¹

There is a need to recognize that energy is one of the critical resources needed to liberate micro-enterprises from low value, low productivity, and low-income activities. Access to energy is vital if micro-enterprises are to enter into more productive activities and to thus enhance their competitiveness.⁶² However, electricity is a necessary but not sufficient condition for development. This is based on data from the Elandskraal (Northern Transvaal) case study which showed a significant increase in micro-enterprises following electrification, but the provision of power occurred simultaneously with subsidies to micro-enterprises in the area.⁶³

Nonetheless, access to a reliable supply of electricity does play an important role in creating the conditions for micro-enterprises to both emerge and expand, based on the following.⁶⁴

The impact of electricity on the manufacturing sector:

- helps micro-enterprises to move into more lucrative markets;
- facilitates an increase in productivity;
- reduces the time and effort required to perform a task;
- enhances one's capacity to perform several tasks concurrently;

⁶⁰ Liedholm and McPherson, 1991, cited in Eckert et. al, 1993.

⁶¹ Fakira, 1994.

⁶² Ibid.

⁶³ Eckert et. al., 1993.

⁶⁴ Fakira, 1994.

- increases product variety;
- improves customer/manufacturer relations; and
- allows enterprises to operate at night.

The impact of electricity on the retail sector:

- access to refrigeration;
- ability to buy fresh products in bulk;
- improved internal lighting conditions;
- access to air conditioning if desired;
- enhanced shelf display; and
- less reliance on noisy and expensive generators for refrigeration.

The impact of electricity on the service sector:

- cuts down on the time and effort spent on the collection of fuelwood which impacts negatively on the performance of enterprises, as it impinges on the time needed to perform other tasks; and
- reduces risk of respiratory diseases, accidental burns, loss of life, eye strain and atmospheric pollution.

Even though the capital costs of electricity are in most cases higher than those for other energy sources, it is argued that the use of this more efficient source of energy is likely to result in the lowering of other costs, and to overall increases in profit margins.

Case Study - Elandskraal.⁶⁵ The most effective way to demonstrate the effects of electrification on the performance of micro-enterprises is by way of surveys conducted in areas both prior and after electrification. Elandskraal is located in KwaZulu/Natal and has a population of approximately 7,500, of which some 45 percent are said to be unemployed.

⁶⁵ This case study is based on data provided in Fakira (1994) and Viljoen (1993).

Surveys conducted in the town indicated that the micro-enterprise sector in Elandskraal has experienced significant growth since the electrification of the town.⁶⁶

Firstly, electrification of the town resulted in a sharp decrease, in all income brackets, on the amount of income spent on energy costs as reflected by the following figures.

Figure 9.4 Income Spent on Energy Before and After Electrification

	Before Electrification	After Electrification
Maximum cost (higher incomes)	R 291	R 68
Minimum cost (lower incomes)	R 103	R 39

The above figures indicate that the introduction of electricity was accompanied by a mean reduction of R138 in monthly energy expenditure. An interesting trend detected is that energy expenditure appears to rise as incomes increase; this appears to be reversed when electricity is the main form of energy. The implication of this for local businesses is that their energy costs are likely to diminish as their businesses grow and become more prosperous.

Secondly, electrification substantially altered the sectoral distribution of enterprises in the town. A survey prior to electrification revealed that small businesses in the town was comprised mostly of general dealers and a very limited number of butcheries, welding, wood and coal, garage, beerhalls and dry cleaners. The micro-enterprise sector was thus clearly dominated by traders, with a very small manufacturing and service industry. A similar survey conducted one year after electrification indicated that a wide range of businesses had established themselves in the interim including additional general dealers, tailors, butcheries, builders, garden farmers and to a lesser extent dry cleaners, bakeries and cafes, panel beaters and upholsterers.

A much larger variety of businesses -- which offer a wider range of products and services -- has emerged during the post-electrification period. It can thus be assumed that electricity has provided entrepreneurs the opportunity to engage in those activities which are highly dependent on electricity, such as furniture and garment manufacturing, building and electrical goods repair. Of the electrical equipment and appliances purchased by entrepreneurs the most popular were refrigerators, stoves, fans, welding machines and butchery equipment.

⁶⁶ It should be noted that there was a concurrent injection of capital into the micro-enterprise sector by the South African Development Trust Corporation, which to some extent also accounts for the growth of this sector.

The second case study looks at the town of Hartbeesfontein located in the North West Province close to Rustenburg and Brits. The town consists of 2,700 occupied sites with an additional 1,000 families on waiting lists for serviced sites, which increases by 400 families each month. Services in the town consist of long drop toilets (provision is being made for water-borne sewerage for the higher income group); purified water from Vaalskopdam (17 kilometers distant) is supplied through standpipes in the settlement; and private generators supply electricity to a few businesses and homes.

A survey conducted by Eskom revealed that only two basic types of small businesses existed in the town, namely, fresh food produce and informal trading. The respondents indicated the following reasons for the lack of businesses: 40 percent expressed no interest in entering business, and 53 percent felt that they lacked sufficient information or capital to enter business. An inquiry about the types of businesses needed in the settlement revealed that there is adequate demand for certain business activities, implying that there is scope for the development of new small enterprises.

Generators are the most popular source of energy used by the eight micro-enterprises interviewed, with others using gas and paraffin. However, generators are associated with very high fuel costs (R75.5 per day). Figures provided for monthly turnover by the micro-enterprises indicated that most of them are in fact able to afford electricity; most generate a turnover of more than R5,000 per month, while three turn over more than R20,000.

The case studies of these two towns serve to emphasize the potential benefits which micro-enterprises can derive from access to electricity. In the case of Elandskraal, electrification had a major impact on the sectoral distribution of micro-enterprises which allowed for a much wider range of goods and services to be produced, not previously possible without electricity. It is precisely this challenge which is facing the micro-enterprise community of Hartbeesfontein, which, without access to electricity, is confined to the production of food and petty trade.

9.3 CONSTRAINTS FACING MICRO-ENTERPRISES

While the previous section showed how micro-enterprises stand to benefit from the introduction of infrastructure such as water, sanitation and electricity into their communities, this section will indicate that despite having been provided with such services, micro-enterprises, particularly in former African areas, face a myriad of other constraints which impede both the growth and emergence of such enterprises. Thus any policy or initiative which seeks to promote small businesses must concentrate on the alleviation of these constraints. Numerous studies have identified the following constraints as the major stumbling blocks.

- **Access to product markets.** A large proportion of micro-enterprises are excluded from access to product markets both due to external and internal factors. The external factors are linked to the nature of the market environment in South Africa, which is dominated by the large firms, resulting in micro-enterprises being confined to uncompetitive markets. This also reflects the fact that micro-enterprises tend to be confined to serving low-income consumers. Internal factors are related to problems of quality, consistency and delivery times, which prevent micro-enterprises from breaking into markets which require high quality. Thus, one of the key marketing challenges facing micro-enterprises is the need to develop access, capacity and skill to serve more sophisticated consumer markets.⁶⁷
- **Access to capital.** Small businesses are unable to access finance from the formal financial system. In particular, African entrepreneurs who were historically prevented from owning property, lack the collateral required by banks to access capital. Added to this is the fact that most African-owned small businesses do not possess the traditional accounting skills which demonstrate sound business acumen. Lastly, as cultural barriers operate against the less sophisticated clients wishing to enter the formal banking system; language, literacy and gender tend to constitute serious barriers in this regard.⁶⁸
- **Skill constraints.** In order to operate a successful small business an entrepreneur needs to possess a range of skills including technical, managerial, accounting and marketing expertise. As Africans in South Africa have historically been denied access to these and other skills, this is a major obstacle which needs to be overcome.
- **Inadequate infrastructure.** Legislation during the apartheid era prevented the establishment of serious economic activity in the former black townships. Despite the lifting of this legislation its toll continues to be felt. Research into micro-enterprise manufacturing in 1993 found that township infrastructure was wholly unsuitable for manufacturing, to the extent that electricity supply and telephones were either lacking or unreliable; transport to and from the townships was inadequate, crowded, and often dangerous; and there was an almost complete absence of banking and other services vital to running a business.⁶⁹

Over and above these constraints, consideration also has to be given to the macro environment within which micro-enterprises operate. Of key importance here are macro-

⁶⁷ Fakira, 1994.

⁶⁸ Ibid.

⁶⁹ Ibid.

economic policies and their impact on small businesses, technology policies which are biased in favor of large firms, and the institutional and regulatory environment which covers competition policy, budgetary support, legislation and procurement policy.

Problems also exist with regard to the town planning/land use and legislative environment manifested during the apartheid era which to a large extent still persists today. Regulations and laws pertaining to the issuing of business licenses not only differed from province to province but were also implemented in very different ways by the individual authorities, thus laying the basis for great confusion. Matters are further complicated by the fact that different bodies in different areas are responsible for issuing such licenses. For example in some townships the provincial authorities (such as the former Transvaal Provincial Authority) had been assigned this responsibility, whereas in other townships the former Department of Development Aid held this responsibility. As most of these bodies have now been made redundant there appears to be even greater confusion as to who should be approached for the issuance of business licenses. A further problem which is not conducive to the development of small businesses is the extent to which corruption has and continues to play a role in the issuing of business licenses in former black townships.

9.4 LOCAL SERVICE CENTERS

The role of small, medium, and micro-enterprise (SMME) was emphasized by the Reconstruction and Development Programme White Paper which stated that the development of small enterprises must form an integral part of the national economy and economic policy. The SMME strategy has become clearer with the publication of a Discussion Paper by the Department of Trade and Industry (DTI). Of particular relevance is that the DTI has proposed the establishment of a nation-wide network of "local service centers" which will consist of business information centers, small industry incubators or hives, business opportunity centers and offices available for information, advice and/or other support required by small enterprises. Importantly, the centers will also provide services and in this respect, therefore, it is evident that the availability of services is integral to a strategy to promote SMMEs.

9.5 CONCLUSION

The installation of services such as water, sanitation and electricity has major impacts on the development potential of communities and in particular within the business sector. Not only can households and enterprises engage in those activities which are electricity dependent, but they can do so in a more hygienic and clean environment which in turn leads to improved and increased productivity. Services of this nature improve people's quality of life, their time available for productive activities, and the quality of products and services offered -- all of which leads to the economic growth and prosperity of the serviced area.

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ANNEX 2 PERSONS INTERVIEWED

Jundaid Ahmed	World Bank, Infrastructure Analyst
T. N. Aucamp	Chief of Urban Development and Control, Kimberley
Dr. Dave Beaumont	HKS Law Gibb, Durban
G. Berner	City Treasurer, Kimberley
Danie Blignault	Kescor, Nelspruit
Andrew Borraine	Executive Director, Institute for Local Government
Neal Carter	HKS Law Gibb, Cape Town
Patrick Chirwa	General Manager, Capricorn Consulting Group, Nelspruit
J. L. Coetzer	Development Bank of Southern Africa
A. G. Cooper	City Engineer, Kimberley
Ray Dabengwa	Executive Director, Electrification, Eskom
Mohammed Dangor	Member of Parliament, Gauteng Province
Jaap Du Preez	Capricorn Consulting Group, Nelspruit
Des de Fortier	Eastern Transvaal Ministry of Housing, Nelspruit
Wynand Fourie	Deputy Director, Environmental Impact Management, Department of Environmental Affairs
Tim Hill	Electrical Engineer, Kimberley
Steve Horn	Regional Advisor, CUSSP
David Horne	City Engineer, Port Elizabeth
Rudy Huysen	General Manager, Kescor, Nelspruit

Dr. Barry Jackson	Development Bank of Southern Africa, Midrand
Paul Jenkins	Policy Advisor, Community and Urban Services Support Project
E. D. Landsberg	City Treasurer, Cape Town
Professor Alan Mabin	Department of Town and Regional Planning, University of the Witwatersrand
Lansana Marah	Technical Advisor, Community and Urban Services Support Project
Richard Martin	Chief of Party, Community and Urban Services Support Project
Liz McHugh	Planning and Development Officer, Port Elizabeth
L.P. O'Connell	Assistant City Engineer, Kimberley
Ian Palmer	Palmer Development Group
Dr. Oscar Somers	Development Bank of Southern Africa
Frank van der Velde	Consulting Engineer, former Mayor, Capetown
Phillip van Ryneveld	Consultant, Institute for Local Government
Bruno Vilane	Director General, Eastern Transvaal Ministry of Local Government, Nelspruit
Peter Wilson	Assistant City Treasurer-Finance, Port Elizabeth
USAID:	
Jeremy Hagger	Chief, Housing and Urban Development Division, AID/South Africa
Carleene Dei	Housing and Urban Development Officer, AID/South Africa
Russell Hawkins	Municipal Finance Advisor, AID/South Africa

Jim Harmon

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ANNEX 3 GREATER JOHANNESBURG TRANSITIONAL METROPOLITAN COUNCIL

Although the Johannesburg region may not provide the model for other urban areas that it often appears, it does represent at least one metropolitan area. In this context, the policy and institutional work of the Greater Johannesburg Transitional Metropolitan Council is useful to consider.

Water and Sanitation

Five institutional options for the future management of water and sanitation were developed. In all these options the Rand Water Board is retained as the bulk supplier of potable water. The options which have been developed recognize the principle that the institution which has primary responsibility for local water would share responsibility for bulk water with the Rand Water Board inasmuch as they would be involved in the storage of bulk water, repair and maintenance and the expansion and replacement of bulk infrastructure. They would also be involved in the bulk water quality control and the provision of new bulk services to meet development needs.

- **Option I.** The core feature of this option is a water and sanitation utility at the third tier which has operational responsibility for water and sanitation (drainage and sewerage disposal) reticulation and bulk waste water. Water pollution control would be the joint responsibility of the Rand Water Board and the Water and Sanitation Utility.
- **Option II.** Option II is characterized by a sanitation utility at the second tier responsible for the bulk conveyance and treatment of waste water and a Water and Sanitation Utility at the third tier with operational responsibility for local water and sanitation reticulation and the repair and maintenance of local sanitation and local and bulk water infrastructure. Water pollution control would be the joint responsibility of the Rand Water Board, the Sanitation Utility and the Metropolitan Government.
- **Option III.** Within this option, broad water and sanitation policy is set by a Water and Sanitation Utility which has also responsibility for bulk conveyance and treatment of waste water and the treatment and storage of local water.

Operational responsibility for local water and sanitation reticulation and the repair and maintenance of local infrastructure is the responsibility of multifunctional local governments. Water pollution control would be the responsibility of the Rand Water Board and the Water and Sanitation Utility.

- **Option IV.** In Option IV the water and sanitation functions are split. A third tier Water Utility would have responsibility for the local water reticulation function. The water utility would also collect all tariffs occurring to both water and sanitation services.

A Sanitary Utility would operate at the third tier, set broad policy and have operational responsibility for bulk conveyance and treatment of waste water and repair and maintenance of bulk waste water infrastructure. Multi functional Local Governments would have responsibility for local waste water reticulation. Water pollution control would be the responsibility of the Rand Water Board, the Sanitation Utility and the multifunctional local governments.

- **Option V.** Option V is characterized by a Water and Sanitation function within Metropolitan Government. This function would have responsibility for local water and sanitation reticulation, repair and maintenance to bulk and local infrastructure and conveyance and treatment of bulk waste water. It would also have joint responsibility with the Rand Water Board for water pollution control.

Electricity

Five policy considerations and institutions have been proposed for the future management and the control of electricity supply industry (ESI) in relation to the Greater Johannesburg Transitional Metropolitan Council.

- **Option I.** The core features of Option I are a Metropolitan Electricity Authority responsible for the provision of bulk electricity supply to the region and Local Authority Electricity Department which would be responsible for local electricity distribution and reticulation. The Metropolitan Local Electricity Authority would form part of Metropolitan Government whilst the Local Authority Electricity Department would form part of Local Government.
- **Option II.** The core feature of Option II is a single Metropolitan Electricity Authority which has responsibility for the provision of metropolitan generation, bulk supply, distribution and reticulation. The authority would have responsibility for all facets of providing electricity supply across the metropolitan region and would form a part of the Metropolitan Government Structure.
- **Option III.** The core feature of Option III is that there is no electricity supply function carried out at Metropolitan level. Multiple local electricity department have responsibility for the provision of electricity supply and for local distribution reticulation. This option is similar to that which presently exists.

- **Option IV.** The core feature of Option IV is an independent Metropolitan Electricity Utility which has responsibility for bulk supply and local distribution and reticulation of electricity. The utility discharge the electricity obligation of the Metropolitan Government under an agency agreement, contract or similar arrangement.
- **Option V.** The core feature of Option V is a Metropolitan Electricity Utility which has responsibility for the provision of all electricity supply. The utility would discharge the electricity obligation of the Metropolitan Government and substructures under an agency agreement and would in turn enter into agency with service providers. Existing and future Local Authority Electricity Departments would be contracted to the Metropolitan Electricity Utility and would be responsible for local distribution reticulation.