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Integrated Rural and Regional Development

Position Paper

Beating the backlog: meeting targets and providing free basic services

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Executive summary

Although economic growth is generally regarded as providing the basis for sustained development, increasingly service delivery is being recognized as critical to human development. In various countries undergoing different levels of economic growth there are often very different outcomes in human development. These are at times identified as social or institutional capital (with a concentration on households or communities) or on state and governmental capacity.

The focus of the latest World Development Report and in current policy is on the separation and better alignment of what are identified as three separate factors: clients, service providers, and policymakers. In South Africa the RDP originally set out a new democratic order with citizens actively engaged in helping extend services to poor communities and set out a set of objectives and targets which have still to be met. It is on this basis that the deprivation of large numbers in society, the inability of the poor to have real access to life sustaining services, can be ended.

To meet the backlog in services for the rural population of South Africa is a political, financial and institutional challenge. Early expenditure on these services has not been based on clear projections of costs against the numbers to be met, but has been largely exploratory and based on relatively stable elements of the budget.

The direction of delivery has not been in a straight line. Although methods of delivery have been worked out over the past 10 years, the constantly changing institutional framework (from RDP to GEAR, from loosely managed systems to the production of key performance indicators, from national to local government delivery, etc) has posed challenges which are being met in different ways and with differing levels of success.

It is clear from the studies which are being undertaken on the backlog and public spending that the existing pattern of expenditure (roughly based on the previous years spending plus inflation) is an inadequate approach to ending destitution in the rural areas and that considerable additional funding is required. Attempts to work out the costs and benefits of the additional investments required are complex. Models are being constructed with varying degrees of complexity although largely focused on capital expenditure. The questions of institutional capacity and operations and maintenance are more difficult to factor.

The HSRC has produced a comprehensive report on Rural Development under 10 headings.¹ This short paper concentrates on dealing with the backlogs in delivery with particular reference to the key life sustaining services of water and sanitation and life enhancing service of electricity. The first point is that considerable additional resources are needed to make these services available to the rural poor. The easy part of delivery has been the investment in infrastructure to the more accessible communities on the basis of line function departments and public institutions. The investment strategy was one of steadily and incremental growth in infrastructure on the basis of fairly modest investment in the extension of water services and of electricity to the unserved poor of the order of 0.33 and 0.36 per cent respectively of total state expenditure in 2003/4.

The current targets of accelerated delivery in water and sanitation which have been spelt out in detail by the Minister are for the backlog in water delivery to be cleared by 2008 and that of sanitation by 2010. Although there is less emphasis on electrification there is also a general goal of the rural poor also enjoying electricity mainly through the extension of the grid or through alternative sources.

This paper contributes to this discussion by identifying the backlogs in these sectors, their location, and the additional investment needed to meet backlogs. The institutional context for sustainability is also developed. Investment in infrastructure at an annual level of R2.3 billion in electrification and R3.2 billion in water and sanitation is needed to clear these backlogs.

Introduction

The quest for a better life by the poor of South Africa is putting human development firmly in the minds of planners and those who are drawing up budgets. Increasingly anti-poverty programmes are being associated with accessing services which will not only sustain life but assist in improving livelihoods and in communications. Poverty at this plane is one of countering the deprivation of poor people who are unable to access the rights accorded to them in the Constitution.

The RDP put forward a vision of an engaged citizenry working together with a government committed to human development to end the immiseration associated with the apartheid period and to build a better life through employment, health, housing, and all that goes to ensure a brighter future. The RDP spelt out targets and objectives in terms of the provision of services as the first step towards development. It also carried an argument for the increased provision of resources to make this possible, and this approach is now being echoed in the international prescriptions on development:

To accelerate progress in human development, economic growth is, of course, necessary. But it is not enough. Scaling up will require both a substantial increase in external resources and more effective use of all resources, internal and external. As resources become more productive, the argument for additional resources becomes more persuasive.²

In South Africa where we do have relatively sophisticated systems of delivery the question is not so much of 'scaling up', a process well underway, as of completing the task of meeting the backlog in services and raising the level of service. There is also the question of making the most of services provided in terms of health and wellbeing; as impact does not necessarily follow automatically from access to infrastructure. In the recent past there has been a change in emphasis in policy from the question of cost recovery to accelerated delivery and the provision of free basic services. This has arisen in part in response to the tensions between the poor and policymakers over the contradiction between the willingness and the ability to pay.

The focus of this paper is the policy shift to the roll-out of free basic services and the infrastructure necessary to support it. This involves basically the rural population, for, with the exception of the informal settlements on the outskirts of the cities, most urban households have access to some level or other of basic infrastructure, the question is rather of the ability to meet the tariffs and charges for services.

It is argued that additional resources need to be provided to be able to meet the backlog in basic services and to provide a sufficient level of funding for free basic services to make the access to services both reliable and really beneficial. Although social spending on health, education, welfare, housing and other social services has risen from up from 52.9 per cent a decade ago to 58.3 per cent of non-interest expenditure in the current fiscal year,³ it is also true that considerable additional social spending is necessary to meet the backlog in services and to provide full access to these services. This, it will be illustrated below, is necessary to meet the stated goals of the RDP and the specific targets in water and sanitation and in other fields to enable South Africa to reach the Millennium Development Goals.

These international and national goals constitute a vital component of the social wage in South Africa. Currently there is either in existence or being debated a proportion of free provision of water and sanitation, approaches to free primary education, a proportion of free electricity, child and old age grants, free health care services and subsidized housing. In an economy in which the burden of economic change has fallen on those who had the heaviest burden under apartheid these are not small considerations. A detailed study of the labour market has shown that African workers are a declining proportion of the labour force (being reduced from 70% of all employed

to 59,1% in 1995). The burden of this displacement has fallen hardest on labourers. For African employees the loss of share in occupations has been concentrated in the less skilled and lower paid occupations such as farming and forestry occupations, production workers, basic service occupations and labourers.⁴ The rural poor and migrant labourers often lag in their access of the provision of infrastructure and the social wage, and there are elements of inverse equity in many of the benefits. This is an argument for firmer and more resolute delivery to the poor and particularly the rural poor.

This discussion paper will map out the recent history of delivery, the nature of the backlog in basic services particularly in electricity and water services, and the model of costing of services to argue the case for greater investment.

Free basic services: water

The provision of services to the rural poor is both a constitutional requirement and a social necessity for post-apartheid society. The former homeland governments provided very limited services on a free basis with the proviso that there should be no democratic provision in managing services; an approach which led to high levels of vandalism and poor community attitudes to these services. There have been advances in a number of sectors, but services labour under the difficulty that those who most desperately need basic services are those who can least afford them. An immediate relationship between costs of delivering a service and revenue received from beneficiaries has generally not been possible in services applying to rural communities. Problems of sustainability arise in relation to the management of projects on a standalone basis over time as low levels of operations and maintenance can be kept up but greater difficulties run into financial problems and to breakdown in delivery.

The provision of free basic services has decisively changed the nature of sustainability of rural programs. Historically projects have been launched in rural areas on the basis of 'standalone' schemes with local communities providing labour and project management. There were many achievements on this basis, but these were against the odds as provision on this basis rested on the poorest of society providing for their services. The decisive shift of service provision to municipalities is beginning to include standalone schemes but raising new questions of funding to local government in terms of their growing powers and functions. There has to be a reassessment of the present basis of allocation of state expenditure between national and local government.

These matters are subject to the annual rounds of discussion and debate associated with the Division of Revenue Act, and the Financial and Fiscal Commissions reports that real increases in both the unconditional Equitable Share and conditional grant allocations are taking place and being planned over the medium-term. "This will assist in accommodating spending pressures in areas such as infrastructure, free basic water and electricity supply to low-income households, and institutional re-structuring."⁵ In a number of areas, however, rural local governments feel that additional funding should be made available; in the case of water, for instance, funds are available for the loss of revenue associated with providing free basic water, but not comprehensively for operations and maintenance which has always been vulnerable in rural water schemes.

Cost recovery and sustainability

There is a deep tension between the imperative of providing basic services and the poverty of the people shown most graphically with the very high level of disconnections which have followed the rollout of rural connections by Telkom. Clearly the current level of service delivery is only sustainable on the basis of a quantum of free basic provision, a policy more clearly attainable in some sectors than others.

The conventional response to the financial sustainability of projects is to stress cost recovery for services provided. There is evidence, however, that cost recovery alone does not answer the to the questions of sustainability in rural areas – there is a clash between the poverty of the people and the meeting of costs which requires widening the boundaries of responsibility. Sustainability then becomes a joint responsibility of rural communities and local municipalities.

Cost recovery in itself does imply costs; in a number of studies its technology and associated personnel can cost more than the revenue received.⁶ Such contradictions highlight the problem of rural services; in many cases there is relatively low consumption of water or use of electricity which, in turn, means there are higher costs and less revenue. In the long run programmes cannot be sustainable without a considerable and consistent increase in rural incomes. Free services involve a loss in revenue but they also reduce some costs; where electronic standpipes have been converted to provide free water vandalism has declined and the costs of maintenance of these metered standpipes was reduced.

The most important consideration is that the provision of free basic water in rural communities has led to consumption rising to levels closer to the RDP first phase standard of 25l per person per day.⁷ Improved consumption of clean water will undoubtedly have an effect on the health of these communities.

With the inauguration of free basic water in the rural areas the standalone model is falling away as water tariffs are no longer met and many standpipes are being changed to provide free water. There is growing pressure on municipalities both to provide free basic services and to clear the backlog in basic services.

What progress has been achieved to date in delivering services to poor communities?

Electrification and water services for the poor were identified as the foundations of a new South Africa in the Reconstruction and Development Programme. The question of electrification will be addressed firstly before moving on to water and sanitation.

Electricity

The RDP reviewed the use of inferior and expensive fuels and celebrated the surplus of electricity which made possible improved conditions for the majority. It argued strongly for electrification and noted that although Eskom had excess generating capacity, only 36 per cent of South African households had access to electricity, leaving some three million households unelectrified. This was identified as a way of relieving rural women of the drudgery of collecting wood which was identified as inefficient and unhealthy fuel. A subsequent survey has found that those women were having to walk more than a kilometre to find wood (increasingly current as woodlots become depleted) and spent as long as 205 minutes daily on the task.⁸ Urban households were argued to be subject to high costs for paraffin and gas and coal was cheaper but subjected people to severe health problems.⁹ There has been a tremendous impetus to alleviate the hardship of the poorest through electrification.

The prospects for electrification have been good. South Africa has an installed generative capacity of some 48 gigawatts, with an extended national grid spanning some 281 000 km of high voltage transmission and distribution lines. These are owned and operated mainly by ESKOM, the national electricity utility. Even during winter there has been a substantial excess generation capacity.

In addition to an extensive capacity the price of electricity is stated on average to be relatively low by international comparison at just over [US] 3 c/kWh in 2001 and ESKOM has undertaken to reduce the cost of electricity in real terms over the next decade.

Delivering to the poor

The policymakers and practitioners involved in the rollout of electricity services became aware of the difficulties in achieving a sustained and sustainable service. The first, and most obvious, has been the low consumption of most of those newly connected and difficulty in meeting normal operating costs. The electrification of rural communities has been regarded as 'particularly problematic' with high levels of cost involved for the following reasons:

- Settlement density is low and the cost of interconnecting houses in a local grid is high,
- There is often considerable distance of the local from the existing grid involving the extra burden of the cost of a feed line, and
- The cost of revenue collection is an important factor.¹²

The conclusions were drawn in 1999 that the rural areas were particularly costly and difficult to electrify and that the Electrification Programme was not commercially viable and should be regarded rather as 'fundamentally a long-term social investment programme with an indirect future return on capital'.¹³

Other observers have been more critical, regarding the Electrification Programme as in some difficulties:

Investment in the distribution networks is falling significantly short of that required to maintain the assets and to extend the network to meet growing demand. As a result the government's objective of secure and reliable electricity for all is under increasing threat.¹⁴

This commentator regarded the treatment of customers as inequitable with significantly different tariff levels, and standards of service and supply reliability. Although the average tariff applied across the country appears low by international comparison there is a wide range of domestic tariffs levied by municipalities ranging from 16 – 60 c/kWh, considerably above the previously quoted average figure. These differences in tariffs appear to bear no relationship to quality of service, costs of supply or the ability of consumers to pay.¹⁵

The material which follows provides some overview of the challenge of continuing delivery to the point of meeting the backlog. The graphs below give some indication of the difficulties of extending delivery: they provide a type of mapping exercise of the problem. In Figures 3 and 4 the provinces are located by their level of urbanisation and electrification. Those provinces to the left and in the centre which are both more rural and have lower levels of electrification.

The two graphs below position provinces by level of electrification and urbanisation. The most rural province is Limpopo which has, however, a higher level of electrification than the Eastern Cape. The most urbanised province is the Western Cape which also has the highest level of electrification followed by Gauteng.

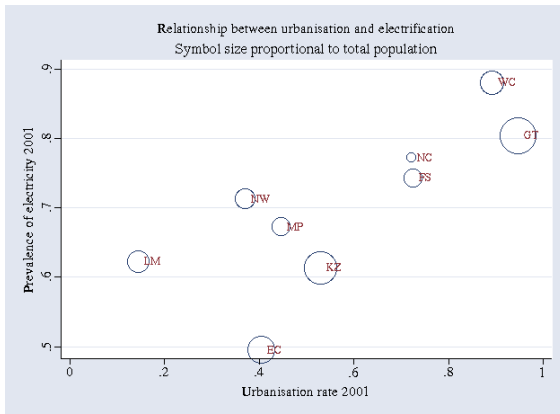


Figure 3: Population by province, level of electrification and rural/urban division

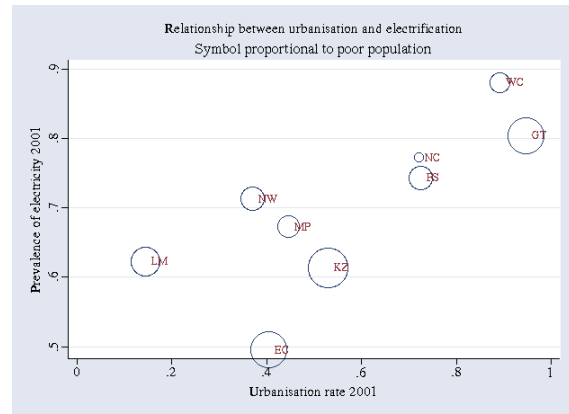


Figure 4: Poor by province, level of electrification and rural/urban division

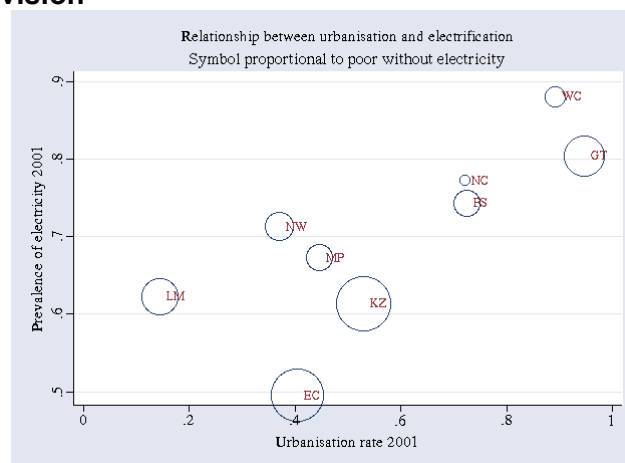


Figure 5: Distribution of poor without electricity

The two graphs (3 and 4) appear to be very similar but in their similarity convey issues of significance in terms of delivery. In Figure 3 the population is plotted by province in terms of electrification and urbanisation and indicates that the poorest provinces are those with the least electrification and those furthest to the left are the least urbanised and less likely to have close settlement patterns conducive to relatively easy delivery. In Figure 4 the population of the poor is plotted in the same way and what is somewhat surprising is that there is a more equal spread of the poor between provinces and on the urban/rural continuum than might have been anticipated.

Figure 5 plots that part of the population which is most difficult to service, the poor who are currently not connected to the grid; again those provinces to the left will find it more difficult in both physical conditions, settlement type and poverty of the people to be able to effect delivery. The largest circles are now those of the Eastern Cape and KwaZulu-Natal.

Modelling the costs of ending the backlog¹⁶

How can additional support be given to the municipalities to complete the electrification of the households and how much will it cost? These are questions which are posed and answered in a modelling exercise presented below.

The first issue to resolve is the average cost of a connection. In the period 1997-2001 the Integrated National Electrification Programme (INEP) accounted for approximately 690 000 new household connections valued at R1.4 billion. According to the data from the INEP the average

cost of connecting a household to the grid was R1 500 and within the distribution of costs there is a standard deviation of R540.

These figures are based on the assumption that the grid is accessible. In fact the installation of 350,000 solar (PV) home systems is a key element in the new programme to improve energy services for remote rural areas, but the costs appear to be considerably more than those of connections to the grid.¹⁷ This feature is not factored into the calculations on a differential basis although it is likely that the cost per installation will be equal or greater than the cost of connection. The INEP considered an additional 25% (on average) was added in its 2 586 programmes to the cost of connecting households -- presumably to make the grid accessible.

Of the 2 534 projects for which data is available (1997-2001) none seem to be located in truly rural areas. A good percentage are located in small towns, but none of the investment took place in deep rural areas of the former homelands. All projects seem to be centred on areas that were already serviced. This suggests that the cost of electrifying rural areas will be substantially greater as the grid still has to be brought to them.

The available data does not hint at what these costs may be. In 1998 ESKOM claimed that connection costs had dropped from R3 300 to R3 150. There are several reasons to anticipate that this drop in costs would not continue. Primarily the initial connections tended to be in urban areas which were close to existing electrical infrastructure. As electrical connections in such areas became ubiquitous the roll out of new connections had to be concentrated in more remote areas where the grid was less accessible. This drives up the cost of making the connections. The point is reinforced by the Integrated Electrification Programme which concentrated heavily on making connections in urban areas. In these areas the average cost of connecting households to the grid was almost R2 000.

The scenarios below are presented on the basis of the backlog being cleared over the period by 2010.

Scenario 1

Given that the average cost of a connection in predominantly urban settings was approximately R1 100 less than the national average cost (not compensating for inflation) it would seem that, given the even balance of urban and rural populations, a connection in a predominately rural setting would be an equal amount above the average – approximately R4 350. As appears from the earlier graphics that most electrical connections now required are in less urbanised areas.

If we assume that each connection costs R4 250 then R14.4 billion is required to connect the remaining households. ESKOM spends approximately R1 billion per annum on its electrification programme suggesting that this tempo (in terms of expenditure) has to be maintained for another 14 years.

Scenario 2

If, however, we assume that the downward trend in connection costs has been maintained then a lower estimate of between R2 000 and R3 000 per connection is implied. Assuming that the real average cost falls between these two estimates (R2 500) then a total amount of R8.5 billion will be required.

Scenario 3

If it is assumed that the cost of connecting a household in a rural area is no greater than the cost of an urban connection then the estimate of R1 900 per connection may be adopted (i.e. the Figure implied by the Integrated National Electrification Programme). This scenario would only arise if the cost of connecting remote and sparsely populated areas was (implausibly) the same as a connection in areas of concentrated population where economies of scale are easier to

realise or, if the additional costs are borne elsewhere. Under this assumption the cost of connecting the remaining households would be R6.4 billion.

Demographic changes 2001- 2004

All the above scenarios are dependent on no further drop in average household size and no population growth after 2001. The latter assumption is obviously implausible and it can be assumed that population will continue to grow almost as fast as it did in the period 1996 – 2001. Some slowdown in growth can be anticipated due to reduced life expectancy in some sectors of the population and to the continued demographic transition in other sectors.

If we assume a 0.1 percent drop in the population growth rate, then in the period 2001 – 2004 the population will have grown by almost 7 percent. Each of the above cost estimates have to be increased commensurately.

If we assume that, in addition to population growth, the drop in household size continues, albeit, at a slower rate then each of the cost estimates above will have to be increased by 10%.

“2001 population” reflects the total number of households who reported not using electricity for lighting in 2001 census.

“2004 population” assumes that this population grew as fast as the population as a whole.

“2004 population with reduced household size” assumes that this population grew as fast as the population as a whole and that the household size continued to decrease at half the annual rate observed in 1996-2001.

Scenario 1: R4 250 per connection

Cost per connection	Households needing connection	CAPEX required	Expenditure pa to 2010
2001 population	3 388 000	R14.4 billion	R2.3 billion
2004 population	3 627 000	R15.4 billion	R2.6 billion
2004 pop. with reduced household size	3 737 000	R15.8 billion	R2.6 billion

Scenario 2: R2 500 per connection

Cost per connection	Households needing connection	CAPEX required	Expenditure pa to 2010
2001 population	3 388 000	R8.5 billion	R1.4 billion
2004 population	3 627 000	R9.1 billion	R1.5 billion
2004 pop. with reduced household size	3 737 000	R9.3 billion	R1.6 billion

Scenario 3: R1 900 per connection

Cost per connection	Households needing connection	CAPEX required	Expenditure pa to 2010
2001 population	3 388 000	R6.4 billion	R1.1 billion
2004 population	3 627 000	R6.8 billion	R1.1 billion
2004 pop. with reduced household size	3 737 000	R7.0 billion	R1.2 billion

Where is the capital expenditure needed?

From a number of sources it clear that providing rural connections is more expensive; but it is not clear if this is where the capital expenditure is being directed.

The graphs below give some indication of the spread of population against by the rate of electrification of municipalities, an indication of the present priority in spending, and a picture of where capital expenditure should be directed to meet the backlog.

Although it is well established that the need is greatest in the rural areas, the graph below (Figure 6) shows that the population is concentrated in the urban areas—the large circles to the right represent the populations of Johannesburg, Cape Town, Durban, and Pretoria. These are clearly at the high level of connection and of service. To the left of the graph are the rural municipalities with most of the population concentrated the lower levels of electrification.

But has this meant that the priorities of the government funding for electrification have been to these areas? The Figure 7 plots the capital expenditure met by the INEP in supporting electrification. The capital expenditure from the INEP fund is plotted in terms of the rate of connection 1996/2001 and the level of urbanisation of municipalities. The INEP appears to fund about a quarter of household connections; the remainder are funded through ESKOM's resources, housing grants, etc. The circles to the right hand side are the most urbanised and are demonstrably larger i.e. receiving most per capita spending. Those to the left of the graph are very small or simply dots indicating a lower per capita expenditure and little support.

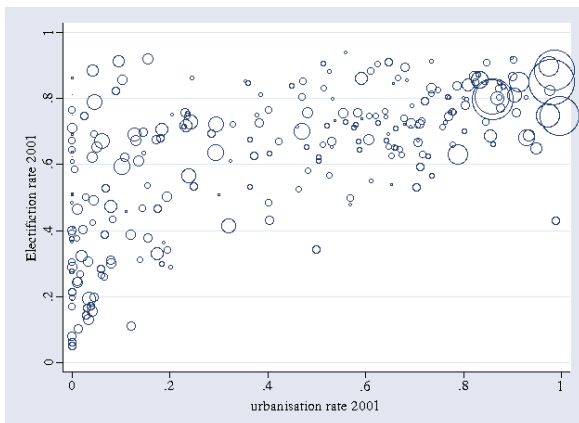


Figure 6: Population distribution

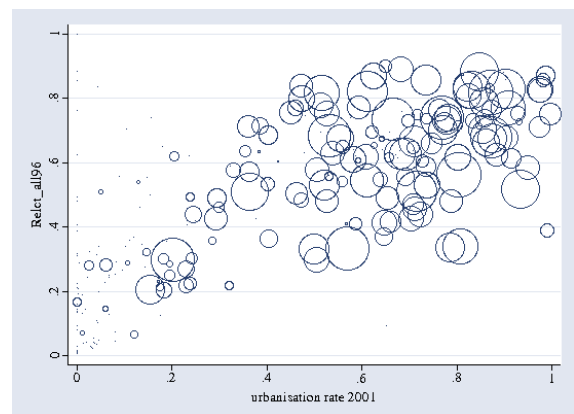


Figure 7: INEP capital expenditure

The problem of capital expenditure appears to be amplified by the question of level of service; most rural connections are at either the 10 or the 20 Amp level while those in the urban areas are at the 40 Amp level. The policymakers have to balance the need in poorly serviced rural areas with the high demand from urban areas which are better resourced yet have much larger populations and a stubborn level of backlog. Figure 8 demonstrates this: each circle is proportional to the capital expenditure required to address backlog, highly urbanized areas are in the right top corner and are shown to still require considerable investment. Their needs have to be juxtaposed against a larger number of small municipalities with poor service levels tightly clustered around the bottom left.

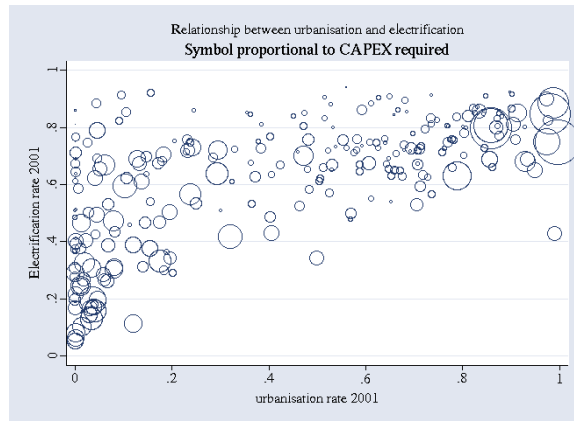


Figure 8: CAPEX required

Can the municipalities manage a higher level of delivery?

The argument can be made that higher level of investment is needed in infrastructure, but the quick response is often that municipalities, particularly those in rural areas are incapable of managing the increased funding with the requisite planning and monitoring. In addition there is the question of meeting the higher levels of operations and maintenance costs. These points needed to be answered in their own right, and will be returned to below, but here an exercise is conducted of ranking the rural municipalities which have been able to rise to the challenge of increased delivery and those which have fallen back.

Figure 9: Councils achieving high levels of electrification

NAME	Rate of electrification, 2001	Level of urbanisation	Level of poverty, 1996	Rate of change, 1996-2001
NW381 Setla-Kgobi Municipality	0.77	0.00	0.68	0.74
NW375 Moses Kotane Municipality	0.91	0.09	0.39	0.65
NP03A2 Makhudutamaga Municipality	0.62	0.04	-	0.62
EC127 Nkonkobe Municipality	0.76	0.23	0.58	0.54
NW391 Kagisano Municipality	0.67	0.00	0.71	0.53

In Figure 9 the municipalities which have a high rate of increase in electrification (ranging from increases of 53-74%) have succeeded largely without financial support from the INEP. These municipalities appear to have worked closely with Eskom to effect delivery and sustain services despite high or very high levels of poor households within the municipality.

Figure 10: Councils having difficulties maintaining level of electrification

NAME	Rate of electrification, 2001	Level of urbanisation	Level of poverty, 1996	Rate of change, 1996-2001
KZDMA27 uMkhanyakude DM	0.51	0.00	0.18	-0.37
WCDMA03 WCDMA03	0.75	0.00	0.33	-0.25
GT422 Midvaal Municipality	0.63	0.72	0.28	-0.12
NC067 Khai-Ma Municipality	0.71	0.46	0.31	-0.06
NP361 Thabazimbi Municipality	0.49	0.40	0.45	-0.05
FS184 Matjhabeng Municipality	0.68	0.93	0.45	-0.05

The municipalities above in Figure 10 have found it difficult to maintain the 1996 level of electrification despite having a higher level of urbanisation, somewhat lower levels of the poor, and greater access of the IEF funds. The declining rate of electrification can probably be explained by the extension of municipal boundaries, disconnections, and administrative difficulties in accessing support funding.

The reasons for success and failure needs closer attention to understand the dynamics of municipal delivery.

Water and sanitation

Water and sanitation received a high priority in the RDP both for reasons of lessening the drudgery of rural women and for health reasons. Although water delivery is universally given priority, sanitation is even more closely related to the survival of children. From calculations made from the Demographic and Health Survey of 1998 it is clear that both water and sanitation have an acute effect on child mortality rates:

- For those households which do not have piped water the child mortality rate (${}_4q_1$) is twice as high (from 11.6 to 27.7); and
- For those households which do not have flush sanitation the child mortality rate (${}_4q_1$) is four times as high (from 7.7 to 34.9).

These are critical facts which drive public concern with delivery in water and sanitation.

Various estimates have been made of the backlog in water and sanitation. Two calculations are provided here, the first based on the RDP standard of provision and the second on the notion of some level of improved service which is less than RDP standards and which is termed here 'access to infrastructure'. The department works on the basis of including the following categories used in the Census 2001 within the RDP standard:

Piped Water in dwelling, piped water inside yard, piped water within 200m
Piped Water in dwelling, piped water inside yard, piped water within 200m, borehole, water vendor

These approximate to the standard of clean drinking water if not necessarily 'treated water', an international standard set by the World Health Organisation, the key issue being one of awareness of the hazard of and the use of a risk-benefit approach, whether quantitative or qualitative, in the control of public health hazards associated with water.¹⁸ The lack of safeguards in itself is regarded as constituting a hazard as pathogens are widespread in water because their occurrence varies widely and rapidly in time and space.

The population served to this level is presented below. What is notable is that there has been relatively slow progress made in relation to delivery at this standard, and in one province there has been a decline in service. Altogether out of a population of 44,8m people, 31,2m people are connected at the RDP standard; but the backlog is providing difficult to eliminate. According to the 2001 census data Gauteng has been most successful in progressing towards serving the backlog recorded in the 1996 census.

In the Figure 11 the population connected at the RDP standard in 2001 is presented, along with a column showing progress made on winding down the 1996 backlog expressed in population numbers and in terms of 'efficiency' as a percentage. The data shows that 3,5m people have been provided with access to water services at RDP standards since 1996. Gauteng has been the most effective in delivery being far in advance of other provinces (although in this case delivery has largely been to urban or peri-urban communities), followed by KwaZulu-Natal and the Western Cape, both provinces which also have a large proportion of urban dwellers. Limpopo appears as

the least successful in meeting the challenge of the backlog showing an *increase* in the backlog by 420 970, 13% of the national 1996 backlog; followed by the Free State, Mpumalanga and Northern Cape.

**Figure 11: Population served to RDP standards
(within 200m of standpipe or above)**

	Population served 2001	Progress since 1996	Efficiency 1996 percent
Eastern Cape	3,181,063	259,546	9
Free State	2,227,810	111,884	5
Gauteng	7,680,784	1,646,022	27
KwaZulu-Natal	5,308,506	686,759	15
Limpopo	2,767,949	-420,970	-13.20
Mpumalanga	2,126,620	139,980	7
North West	2,393,741	222,747	10
Northern Cape	703,243	55,393	9
Western Cape	3,870,554	443,653	13
Grand Total	31,208,773	3,478,328	13

While the advance towards provision at the RDP standard seems relatively modest, the inclusion of the population served with standpipes further than 200m from their dwelling indicates a much greater level of delivery.

In total some 9m people have had some improved level of delivery since 1996; KwaZulu-Natal, Gauteng, the Eastern Cape, and the North West, all indicate considerable effort in meeting the 1996 backlog. Once this is achieved, however, the priority is the reduction of the distance to standpipes by providing access closer to dwellings and achieving the RDP standard.

Taken as a whole nation-wide 8,8m people benefited from improved water services either at the RDP level or at a lower level of service; this represents a 32% reduction of the original 1996 backlog.

Figure 12: Population able to access infrastructure (those with access at RDP levels plus access to standpipes beyond 200m)

	Population served 2001	Progress since 1996	Efficiency percent
Eastern Cape	4,013,834	1,092,318	37
Free State	2,529,832	413,906	20
Gauteng	8,281,690	2,246,928	37
KwaZulu-Natal	6,478,718	1,856,971	40
Limpopo	3,969,893	780,975	24
Mpumalanga	2,558,724	572,084	29
North West	2,974,071	803,078	37
Northern Cape	760,281	112,431	17
Western Cape	4,157,856	730,955	21
Grand Total	36,547,169	8,816,724	32

These people are served at a level in which there are long distances to cover to access water, lower levels of consumption, and greater risks to family health.

The backlog: a moving target

The calculations above assume that the backlog is relatively fixed and that, with application, steady progress can be in reducing this sum. Unfortunately the matter is not so simple. The number of people, and more particularly the number of households in South Africa, is growing and the backlog is a stubborn thing. It appears that a considerable proportion of the 2,146,124 additional households recorded between 1996/2001 are among the poor and more likely to be in the categories of unserved.

Despite the considerable investment in rural water delivery the indications are that the backlog of people who are unserved at the RDP level is growing. Nationally the size of the backlog rises from 1,8m to 3,0m households between 1996/2003; an indication of how delayed delivery succumbs to the pressures of population increase. The figures rise most abruptly in Limpopo which is recorded above as having a low level of delivery, but also in KwaZulu-Natal.

Figure 13: Backlog at RDP levels (households)

	Backlog 2001	Backlog 1996	Change in backlog
Eastern Cape	736,796	619,783	117,013
Free State	114,467	37,254	77,213
Gauteng	250,996	78,305	172,691
KwaZulu-Natal	822,316	560,518	261,798
Limpopo	536,253	240,848	295,405
Mpumalanga	201,474	107,350	94,124
North West	282,049	133,888	148,161
Northern Cape	21,771	16,497	5,274
Western Cape	98,153	31,098	67,055
Grand Total	3,064,275	1,825,541	1,238,734

Viewed from the perspective of providing an improved level of service (by adding the figures of those in dwellings beyond 200m from a standpipe) there is evidence of a greater impact on the backlog (the negative figures indicating progress in reducing those unserved). In certain provinces: Northern Cape and the Western Cape, the end of the backlog appears in sight. The other way of viewing the process is to see that there are a large number of projects which are not providing for beneficiaries at the level of the RDP standard and are thus compelling households to consume considerably less than the 25l per person per day spelt out in the RDP and subsequent policy documents.

Even at the lowest level of delivery there are substantial backlogs, although in each province this backlog is declining. In terms of households, the national backlog has shrunk from 1,8m to 1,7m over 1996/2001 through a total decline of 153,891 households. This marks an increase in delivery over the increase in households during the period.

Figure 14: Backlog access to infrastructure (households)

	Backlog 2001	Backlog 1996	Change in backlog
Eastern Cape	533,681	619,783	-86,102
Free State	30,572	37,254	-6,682
Gauteng	63,213	78,305	-15,092
KwaZulu-Natal	543,694	560,518	-16,824
Limpopo	256,731	240,848	15,883

Mpumalanga	93,448	107,350	-13,902
North West	125,203	133,888	-8,685
Northern Cape	6,761	16,497	-9,736
Western Cape	18,347	31,098	-12,751
Grand Total	1,671,650	1,825,541	-153,891

What is significant in rural delivery is the geographical spread of deprivation defined here as a lack of access to life sustaining services, a feature which can become self-reinforcing. Poor capacity to spend and manage spending on infrastructure can lead effectively to underspending and the reallocation of funding to other provinces. Undercapacity can lead to underdelivery and deny rural residents the urgently needed services to end poverty and destitution.

There has to be a turn in the situation away from long term incremental growth of services towards a plan based on careful estimates of the backlog, costs, and budgets to meet the backlog. This will require additional funding and national commitment to ensure that the systems of delivery can undertake the tasks expected and that delivery avoids a 'stop-start' syndrome which has held back delivery generally and led, on occasion, to half completed projects which require considerable additional funding to complete.

What would the corresponding funding requirement be to fully meet this need?

Increasingly it is becoming clear that the task of meeting the backlog in rural delivery will require a turn in the funding arrangements and renewed commitment towards rural development.

A recent study conducted for DWAF Water Services provides some idea of the magnitude of the challenge in meeting the target dates of 2008 for the elimination of the water backlog and of 2010 for the elimination of the sanitation backlog.¹⁹

The study presented the results of an Investment Scenario Planning exercise carried out to evaluate a variety of scenarios for expenditure; and, in particular, to assess the impact of various strategies on delivery of water and sanitation. The exercise was not designed around a detailed costing and re-budgeting year by year but was rather aimed to provide an overall trending analysis to situate the various funding strategies. It is particularly useful in giving a costing of the approach to the national delivery targets presented by the department.²⁰

Two scenarios are presented; the first providing an estimate of clearing the backlog through projecting the present level of spending and the second starting with the announced targets in water and sanitation and calculating the expenditure necessary to reach them. A conservative estimate is used of the backlog at 7,1m people and of the cost of provision, at R915 per person in water. There are two scenarios built into the model; the first based on the forward extension of the current budget and the second on the funding necessary to reach the announced targets for both water and sanitation.

The table below gives an indication of the statistics:

Figure 15: Access to clean drinking water: two scenarios

Access to clean drinking water	Funding at current levels	Funding at level to meet targets
Backlog	7 135 469 persons	
Capital cost	R915/person	

Treasury funding	Average R1,185bn per annum	Average R3.2bn per annum
Target reached	2011/2012	2007/2008

Figure 16: Access to improved sanitation: two scenarios

Access to improved sanitation	Funding at current levels	Funding at level to meet targets
Backlog	4 348 876 households	
Capital cost	R2700/household	
Treasury funding	Average R1,185bn per annum	Average R3,2bn per annum
Target reached	2020/2021	2009/2010

There are a number of assumptions built into the model which tend to make the statistics presented above as optimistic:

The sector suffers from imprecise definition of levels of service and of the backlog,
The backlog figures are within a lower range of estimation, most estimates of the current backlog are between 10-11m not the 7,1m utilised;
That there will be donor funding for the next six years;
No account is taken of operating costs or future reinvestment costs;
The model is based on the current year 2003/4 and assumes these targets will be met;
No attention is given to population growth dynamics;
Costs per project vary widely and can have decided effects on operations and maintenance costs i.e. the unit cost could be conservative;
The calculations do not take account of CMIP or MIG funds being used for water and sanitation;
and finally it assumes that the current cost structure for water and sanitation is maintained as the funding transfer takes place from DWAF to MIG.

The most important assumptions probably relate to the calculation of the backlog and the unit cost; both crucial variables. The first issue will be returned to below and the second, unit cost, needs to take into account the 'law of diminishing returns/increasing costs': that projects are relatively further from urban centres and less accessible are more likely to be more expensive.²¹

Despite these reservations, the general trend is clear; that targets in water and sanitation can only be met with the provision of additional resources.

How can these backlogs be financed sustainably?

Everyone agrees that the capital expenditure and development of infrastructure is the easy part and that the challenge is that of providing services over time: sustainable delivery. All are also agreed that the delivery of infrastructure is an essential aspect of any form of poverty alleviation; providing poor people with the prospect of healthier lives and with the chance of better livelihoods.

The realisation of sustainability depends essentially on two factors:

- The provision of sufficient supporting funds from the national treasury to support the operations and maintenance of projects in communities which are some of the poorest in the country;
- Training and support to encourage the best public management of water services and projects; and

- Sufficient public participation in the management of projects to encourage both their best operation and the linked question of socially acceptable cost recovery.

Treasury has provided various kinds of support for improved public management through municipalities in terms of support for Integrated Development Plans (IDPs) and Water Plans as well as through the DPLG and the Free Basic Water account. All these forms of support can make a significant difference to the sustainability of projects if properly drawn on and managed.

In a recent study of the sustainability of water projects in KwaZulu-Natal an analysis was made of 23 completed projects to assess their sustainability.²² It was found that of the 23 projects 78% were working at one level or another, but that only 22% of the projects were sustainable on the basis then in existence i.e. as a standalone project with minimal intervention and support from district municipalities.

More disturbingly 56% of the projects were either not working or working below RDP standards. The latter is a major concern as in a number of projects there is evidence of social exclusion with a section of the population beyond 200m or unable to access water because they are too poor or projects which are designed to provide yard connections only benefit those who can pay the quite high cost of connection.

Through the research, publicity, and intervention by the Minister 3 out of the 5 projects which were not working at the time of fieldwork are now working. The most common form of intervention was by district municipal officials visiting the projects and taking control of the Eskom bills which had become quite substantial and which had led to cutoffs of electricity to the pumps and the closure of the projects. In these cases the district municipalities had agreed that all Eskom bills for water projects should be directed to the district municipality rather than directly to the projects. This is widely regarded as a more effective way of managing electricity accounts, but it is only the first step in achieving the continued operation of projects necessary to longer term sustainability.

The final point has to be that the sustainability of projects is ultimately dependent on the growth of employment and rising incomes among the poor to make the costs of additional utilisation of water beyond the limits of free basic water realisable.

What are the main implementation constraints/ bottlenecks beyond funding?

Undoubtedly the key constraints on delivery are both to be found in insufficient capacity and in uncertainty in funding. In a number of sectors of delivery, but particularly in water and sanitation there has been a history of developing institutional arrangements for delivery but a number of problems in terms of ensuring smooth funding and steady application to the completing the task at hand.

Although the budget history shows fairly consistent funding in water and sanitation, for example, the experience of practitioners and officials in the past has been one of stopping and starting projects. In a number of projects this has led confusion among officials and a sense of frustration among beneficiaries. It appears to be one of the reasons is that some projects have been cut short because of budgetary constraints and eventually registered as complete while only the first phase has been finished. It appears that projects are often designed to provide for a community in phases, but after the first phase is initiated project and funding difficulties encountered, modifications are made to the original plan. These changes have ended in substantial parts of a community being excluded.

In interviews with officials and practitioners the following points are made in relation to bottlenecks and incapacity. These are gathered under the following headings:

Policy and strategy:

- The priorities in spending are not easily reached and often take the form of long debates between councilors and among officials.
- There is often confusion over procurement policies with unresolved contending views.
- Municipal strategies can be contradictory: where there is a limited amount of funding the spending is spread among various constituencies and villages rather than dealing with one area at a time. In one instance the funding for 100 VIPs was spread among 20 villages even though this would eventually be much more expensive. This satisfied the councilors who needed to be seen to be bringing delivery to their constituencies, but drives up the time to complete and costs.

Spending:

- Most of the institutions are new and there is not enough experience for officials to make confident decisions. The capacity problem generally takes the form of municipalities not being able to manage their finances.
- Despite established budgetary procedures there is always some uncertainty about how much money is available at any time. Uncertainty about budgets can have human resource implications for contractors and delay delivery.
- Invoices are not met within a reasonable amount of time because there is uncertainty about their financial standing and this slows delivery. At times this can lead to legal action being threatened against municipalities, cheques written and bouncing.
- Changing from one system to another can lead to delays. In the switchover from DWAF to municipalities, arrangements have often not been put in place in time, procedures have at times not been agreed, and DWAF itself on occasion has had to meet invoices because of lengthy delays. In some provinces there are disputes over division of expenditure and an impasse reached.
- In other provinces there are not major disagreements but money has not been transferred.
- In some cases the transfer of data and key indicators of progress on projects is problematic and municipalities are not able to confirm whether or not invoices have been met. At times a whole reconciliation has to be undertaken before contractors are paid.

Institutional:

- The DPLG has provided a series of support initiatives for local government including training, IDP funding, additional 'hands-on' support as well as the Planning, Implementation and Management Support (PIMMS). On occasion these interventions do not reach local government and at other times there appears to be some resentment of external intervention.

Human resources:

- Staff turnover particularly in rural municipalities is high; it is reported that after two years a contractor could find that he or she deals with entirely different people. Few professionals appear to be prepared to work in deep rural areas as the case of medical practitioners has shown.

Communication:

- There is a problem of effective communication between line departments and local government officials. “Bureaucrats don’t take risks when they are not sure what to do. They wait for directives and want more clarification. An email is not enough, you would like your manager to have a direct communication to be sure how to work. Often a face to face approach is needed as the line department officials are not always clear themselves.”

Equity:

- Where there is a lack of spending because of capacity problems or disputes, funds can be reallocated to provinces which are able to manage competently but this causes long term equity problems.

The investment model created for DWAF Water Services presented above focuses exclusively on the financial issues and does not take into account the impact of other key constraints such as available capacity in implementation and flexibility in the allocation of funds. These factors will impact negatively on targets although provision can also be made to meet these shortcomings.

The comprehensive list of capacity problems presented above demonstrates that this is not a human resource issue alone, it is also one of political prioritisation, building established procedures, and the speedy resolution of disputes between different spheres of government.

One crucial variable in every discussion is that of certainty. Where funding and policy is certain, bureaucrats find it easier to make decisions and accept the consequences. The difficulty with every new system and acronym is that there is the inevitable ‘bedding down’ of new procedures, new forms different from the old, and new reporting systems.

It is proposed that a proportion of the additional funding projected here should be specifically devoted to ensuring that there is the appropriate capacity being built with every project initiated, implemented and completed. This should focus on the gathering of talent and ability among the people already living and committed to the development particularly of rural communities.

Prospects and practice: two case studies

While the national statistics and conception of issues is important, a case study can help illuminate the general processes and the concrete experience of communities and local government officials. While the national statistics and conception of issues is important, a case study can help illuminate the general processes and the concrete experience of communities and local government officials.

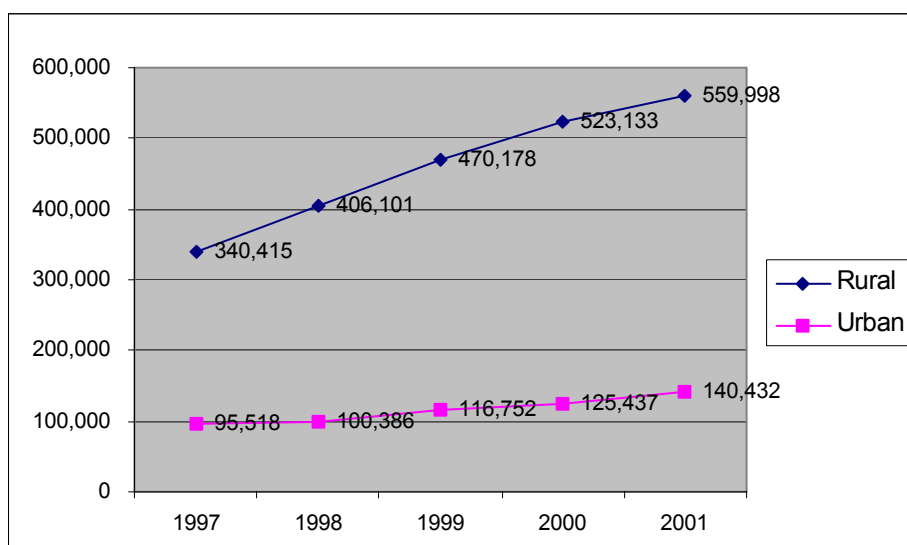
Case 1: Electrification in the Limpopo Province

Two case studies are presented here; the first a study of a province, the Limpopo Province and a local government, the Makhudutamaga Municipality in relation to electrification; the second a case study of the treatment of parasite infections which involved the coordination of a number of departments and municipalities.

The Limpopo Province has had a comparatively successful programme of electrification despite being the least urbanised province in the country. The rate of rural connections has risen from

38.8% in 1997 to 58.1% in 2001 while the rate of urban connections has risen modestly from a fairly high level of 74.61% in 1997 to 87.5% in 2001. These statistics are represented graphically below showing a more sharply rising line among rural connections than among urban.

Figure 17: Electrification in Limpopo



The statistics are those of achievement but what has been the experience of the people? The first point to be made is that the greatest consumption of electricity by far is that of the mining sector, followed by manufacturing and then domestic consumption.

Among the majority of domestic consumers in the district municipality consumption is low and electricity appears to be used mainly for lighting, radio and television; rather than for cooking.

Figure 18: Fuel for cooking, Sekhukhune district, percent

Electricity	21
Gas	1
Paraffin	6
Wood	55
Coal	14
Animal dung	1
Solar	0
Other	3
Totals	100

Census 2001

The majority of the people (55%) use wood as source of energy for cooking. The residents of Makhudutamaga Municipality which is located in the previous homeland which has seen an increase in rural connections by 62% in the period 1996/2003 complain of having to pay higher tariffs than in urban areas and some area are not connected because they are too far from the grid. Eskom officials argue they need to charge a connection fee to reach these areas because of the additional cost. Residents feel there is pressure on the households in these areas start to relocate to other villages where there is electricity. But the problem still remains one of cost even where there are higher levels of service: even areas that are connected use wood and paraffin for cooking because the electricity coupons are expensive. There is also a problem of quality of service: during summer there are frequent power cuts and residents have to be careful to

disconnect television sets and fridges which could get damaged through lightning. There are problems of frozen meat rotting because of long delays in reconnection.²³

The main problem reported, however, is that of cost and there is a considerable grievance that the residents of Makhudutamaga Municipality are paying more than other areas. In 1998 the White Paper on Energy reported as follows:

The social costs of current energy usage patterns are enormous, such as those imposed by the collection of scarce fuelwood resources. The majority of South Africans simply do not have access to affordable and convenient fuels of choice. Moreover, even where access to fuels has been provided, it is often the experience of suppliers that consumption levels are low, and hence the benefits of more modern and convenient fuels are not felt.²⁴

Somehow the promise of electricity removing the burden from women of having to walk for hours every day and having to use dangerous or dirty fuels has not been realised.

The Makhudutamaga Municipality considers its relationship with Eskom is good, but there are difficulties in communication. Requests for a printout of the electricity bills for the residents to be able to provide the figures to access funding for free services and requests for connections to water pumps have not received a response.²⁵ Such difficulties are an impediment to small councils getting the funds provided to initiative and support delivery.

The use of a variety of fuel sources seems fairly typical in the deep rural areas and will continue to be so until there are two changes: firstly measures to provide free basic electricity at a level beyond lighting to include cooking as a social necessity, and secondly energetic measures to increase rural development and provide employment.

Case 2: Starting and stopping -- failure in parasite control KwaZulu-Natal 1998-2000²⁶

The experience of a task-team initiating school-based treatment of parasite infections from relevant departments gives some idea of the constraints in successfully implementing critically important programmes. In 1998 the KZN Department of Health initiated a school-based treatment and control programme intended to benefit 1½ million children in areas where clean water and sanitation was inadequate.

The programme planned to combine treatment, health education, and sanitation in the schools serving areas where there was not adequate clean water and sanitation. Other departments and institutions were gathered around the department of health in a task team met regularly, encouraged focused health education and ensured the necessary drugs were available at schools.

In addition, the programme has the potential to a number of associated institutional and social spinoffs. It was sustainable as it did not place large additional demands on budgets and the drug costs were relatively low. It selectively benefited poor communities, encouraged community participation, and provided an entry-point to community-based health care. It readily linked with other programmes such as health promotion in schools, nutrition, etc. Most importantly it encouraged intersectoral collaboration (Education, Water Affairs, NGOs specialising in Primary Health Care).

An evaluation conducted at 40 schools found that treated children experienced freedom from pain and blood loss. They were less often absent from school and less likely to repeat grades. They were more likely to perform better on scholastic tasks. In addition, after some initial misgivings, parents/caregivers expressed a willingness to become more involved in the programme and open to information.

The impact had been fairly rapid. There was a dramatic decline in parasite prevalence in the school children between 1998 and 1999, but very little improvement between 1999 and 2000. Although the programme had been launched and implemented with some enthusiasm, difficulties

appeared in inter-departmental coordination and insufficient commitment from the 'lead' department. Basically there was a drop-off in drugs being distributed to the schools and **in the case of a number of the parasite infections the incidence was starting to rise to pre-treatment levels.**

It is scandalous that South African children still have to endure the humiliation of parasite infections ten years after the beginning of democracy. These infections are relatively cheap to treat, but an effective programme of action depends on a lead department and dedicated funding to ensure follow through. The main lesson from this case study appears to be the need for accountability by a lead department, dedicated funding, and the need for relentless campaigning to ensure that the remnants of the old thinking are effectively replaced by progressive health measures.

Free basic services and the backlog: budgetary implications

The provision of free basic services has had varied impact. In community water projects where free basic water is now being provided there has been a doubling or even trebling of water consumption with very important implications for health and wellbeing in rural communities.

The provision of funding for free basic services is the basis on which the sustainability of projects directed at meeting the backlog can be secured. Priority still has to be given to guaranteeing to the rural poor the future which they have been anticipating.

In the latest Strategic Plan of the Water Sector the facts are clearly spelt out:

At the dawn of democracy in South Africa there were an estimated 12 million people or more without adequate water supply services and nearly 21 million people without adequate sanitation services. However, our inequalities have specific historical roots and our ability to deal with the services backlog is greater than most developing countries. South Africa has made great strides in reducing this gross inequality. It is estimated that more than 9 million people have been provided with basic water supplies during the last nine years. This is an impressive achievement. Nevertheless, inequality in access to basic services is still a stark reality and progress with sanitation has been much slower.²⁷

The challenge is one of considerable proportion both in the mobilisation of communities, the organisation of systems of delivery, and the provision of additional financial resources. The South African population does not stand still. In 1994 the backlog in water delivery was some 12m people now it has been calculated at 10,554,306 despite delivery to some 3.5m at RDP standards and 8.8m to some level of infrastructure. There are similar challenges in electricity and in other services.

To meet this challenge in electricity calls for an annual investment of R2.3 billion in extending services; in water and sanitation R3.2 billion. These are considerable increases in the existing patterns of investment but they must be made.

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- ² World Bank. 2003. World Development Report 2004: Making Services Work For Poor People, p1.
- ³ Budget speech 2003/4. The main budget provides for expenditure of R334,0 billion in 2003/04, rising to R395,6 billion in 2005/06 and investment in water and sanitation and extension of electricity is currently of the order of R1,1bn and R1,2bn respectively.
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