

*Rural Electrification*

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# Rural households' response to the 2.5A electricity supply option in the Tambo village pilot project

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## 1. INTRODUCTION

### 1.1 Putting this report in context

Tambo village is one of the sites where Eskom is piloting the current-limited supply of electricity. Although the process of implementing the 2.5A supply began in 1995, it was only by April 1996 that the first houses were 'switched on', that is, they were able to use their electricity. In July 1995 fieldwork for a pre-electrification study at Tambo was undertaken by the EDRC. The pre-electrification report was published in March 1996 together with the other case studies which form part of the project *The role of electricity in the integrated provision of energy to rural areas*.

It was decided that the fieldwork for the post-electrification study would take place at least three months after electrification had occurred as this seemed like an appropriate length of time for people to begin to adjust to using and paying for electricity. Also, Eskom had developed both a kettle and an iron which could operate with the 2.5A supply and it was necessary to wait until these appliances had been disseminated in the village.

The report is based on data collected on three separate field trips. During the first field trip in May 1996, only the sampling of households for the study was undertaken. As Eskom's Technology Group planned to undertake load research at Tambo, it was decided that it would add value to the research process if both our research and Eskom's research included the same households. Due to the need to capture the winter load data in households, we did the sampling three to four months before we were able to proceed with our qualitative investigation. Although not an ideal situation we wished to avoid a random sampling of households, as would have been the case if Eskom had sampled the households. We therefore undertook the sampling according to criteria which ensured a cross-range of households, with a specific effort to include the very poor households. This fieldwork was undertaken by Nomawethu Qase and Bronwyn James.

The next two trips, one in August 1996 and the other in October 1996, were dedicated to interviewing different members of the Tambo community. The August fieldwork was undertaken by Bronwyn James and Pamela Ntutela, while the October fieldwork was undertaken by Pamela Ntutela.

### 1.2 Objectives

The objectives of this study were:

- to undertake a qualitative post-electrification study of the 2.5A pilot project at Tambo village;
- to assess the acceptance and appropriateness of the 2.5A supply option, which includes the level of supply, tariff and local agent for revenue collection;
- to assess whether the flat rate tariff was affordable for households;
- to determine the extent to which access to electricity has resulted in sustained use of electricity in households;
- to examine the energy use patterns in households, with an emphasis on electricity;
- to locate energy use patterns in the context of people's livelihood strategies; and
- to examine the social relations of power which impact on people's ability to survive, as well as on their energy use.

### 1.2.1 Inclusion of a quantitative questionnaire

Although not in the initial aims of the study, it was decided to include a quantitative questionnaire survey in the October in order to assess whether the findings from the qualitative work could be legitimately generalised. Further, it was believed that it would be beneficial if the households which Eskom was including in their load research were surveyed.

The findings from the questionnaire have not been fully analysed as Pamela Ntutela left EDRC before completing this work. Thus, this report contains very little data from this questionnaire - although the data which is analysed and is relevant has been integrated into the report. It is envisaged that the survey data will be included at a later stage if it is considered to be reliable.

## 1.3 Research approach

Although this report is not a theoretical piece, it is important to outline the theoretical perspectives which underpin the research approach and analysis. These include definitions of the household, livelihood strategies and social relations.

### 1.3.1 Understanding the household

In most energy studies investigation and analysis of findings are located within the context of the household. However, with a few notable exceptions, the authors give little attention to outlining and defining their conceptual approach to 'the household'. This does not mean, however, that these studies lack such a conceptual approach as all research is underpinned by a 'theory', albeit unconscious and hidden.

Perhaps the strongest underlying assumption about households which is made in rural energy studies is that households are homogenous units. This assumption stems largely from neo-classical<sup>1</sup> economic notions of the household which can be simply summarised as follows:

- Households behave as if they were a single entity, with internal harmony of interests.
- Decision-making on the allocation of resources is based on altruistic principles where decisions are made to maximise joint welfare. (Kabeer 1994; Kabeer & Joeke 1991)

As Kabeer and Joeke (1991: 3) argue, even where households are viewed as a 'convenient conduit for data collection' the neo-classical model lives on.

This model has been critiqued by anthropologists and their insights have been supported by a growing body of literature which points to inequalities within households. One of the important criticisms informing this research asserts that family ties do not mean that interactions and decisions are purely altruistic. Rather, it is the social relations of gender which shape the unequal distribution and allocation of resources within the household. It is critical, therefore, to disaggregate the 'household' and not to assume that household members will experience development interventions (electricity) equally. The composition and organisation of households have a direct impact on women's lives and on their ability to gain access to and control over resources (Kabeer 1994).

### 1.3.2 Livelihood strategies, social relations and energy

As noted above, a number of studies have been informed by anthropological insights about the household, particularly through their analysis of gender and energy. It is acknowledged that the social relations of gender shape the division of

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<sup>1</sup> There are alternative economic approaches which take up the critique of the neo-classical model of the household. For examples of this work see work by Amartya Sen.

labour which has allocated certain responsibilities to men and others to women. In general, women have been allocated the responsibility for budgeting for and providing energy, managing the use of energy and appliances and using energy within households. This has provided the rationale for a specific focus on women and/or gender in energy studies.

As the knowledge of rural energy use and gender deepens, analyses have begun to locate rural energy within the context of household livelihood strategies. For instance, many of the initial studies pointed to women having little control over the purchase of electrical appliances (James 1992). However, as Annecke (1996) points out, this is only one level of a gender analysis and it is often not the case. It is impossible to generalise such a finding. This case study at Tambo will show that despite oppressive gender relations in households, some women have considerable influence over expenditure on appliances. It is, therefore, impossible to make very distinct causal links between gender, as a determining factor, and energy use.

A similar argument can be made for understanding how other factors influence energy choices and behaviour. It is often the case that other resource demands, which have little to do with energy, will impact indirectly on energy use. For example, one of the households with a stable income had been cut off from the electricity supply because the man had prioritised expenditure on cattle fodder.

Thus, the livelihood strategies of different household members are important to factor into our analysis of energy use. Energy choices are considered to be one of a number of livelihood strategies which ensure survival. Decision-making processes about energy use are made in the context of other resource demands (for example, income, land, labour) and the needs of different household members. An analysis must also take account of social relations, such as gender, race, class and age, which mediate the opportunities and access to and control over resources necessary for the survival of different household members.

This report will not contain a discrete section on households' livelihood strategies. Rather, when energy and, more specifically, electricity issues are discussed, the household livelihood strategies will be woven into the narrative and analysis. What will emerge is not a simple cause and effect analysis, but rather a picture which illustrates the complexities of energy use, decision-making and choices.

## 1.4 Methodology

### 1.4.1 Sampling process

Sampling for the study took place in May 1996. The households included in the sample were selected through a participatory process with key informants. These informants included both men and women who had an extensive knowledge of the village and its inhabitants, such as the community health workers and the SANCO chairperson. The selection of households for the sample was based on the relative state of poverty of households, thereby ensuring that a wide range of households, including the very poor, were included. The perceptions of the group of key informants at Tambo were used to define and group the households. We, as researchers, did not attempt to influence this definition.

The process followed was as follows:

- A group discussion on the factors which would influence the extent to which people could be considered poor was held. The group identified the following as indicators of poverty:
  - the absence of a male in the household
  - a large number of children in the household
  - lack of a stable source of income



- The group suggested that it was a combination of one or more of these factors which was important in defining the extent to which households were poor. One other factor, the structure of the house, was also mentioned as a useful indicator. However, it was decided that it was not a reliable indicator as many people were in the process of building permanent dwellings and therefore the present structure could not be used as an indicator of relative wealth or poverty.
- The village was divided into three geographical areas and the key informants were allocated to each geographical area on the basis of their knowledge about the people in the area.
- One map of each area was drawn, with all households clearly marked.
- The researchers marked the 20A and 2.5A households on the map.
- Once this was complete, using three different colours, households were ranked according to the criteria above and marked on the map as:
  - very poor households,
  - households which managed to survive from one day to the next, and
  - relatively wealthy households.
- Six households in each of these categories were included for each of the three key informant groups.
- Fifty households were sampled, with equal numbers of 2.5A and 20A households. A list of these households was sent to Eskom for their load research and it was also used to identify households for our research.
- As the dataloggers used by Eskom for the load research are able to monitor four households each, the potential to monitor two hundred households existed. However, due to problems with data collection and logger failures only one hundred and forty-two households were monitored (Forlee 1996).

#### 1.4.2 Qualitative in-depth research

Seventeen households from the sample of fifty described above were included in the in-depth sample. These households were selected on the following basis:

- willingness to participate in the research;
- mix of households with 20 A and 2.5 A supply of electricity;
- ensuring that households covered all three categories of relative poverty and wealth;
- inclusion of 2.5A households which had been cut-off from their electricity supply, as well as those who were up to date with their electricity payments;
- ensuring different gender of heads of households; and
- inclusion of different household sizes and structures.

Of the seventeen households, seven had opted for a 20A supply of electricity, while the other ten had a 2.5A supply. Four of the ten 2.5A households had had their electricity supply cut off.

Interviews with all these households were undertaken during the field trips in August and October. During the visits to the households efforts were made to interview the energy users, which in most cases were the adult women in the households. However, where children or men fulfilled the energy-related responsibilities in the household, they were interviewed. Also, due to the focus of the study, where electricity and energy use are located within the context of livelihood strategies and decision-making in the household, it was also important to interview other household members. Where appropriate and applicable, therefore,

spouses and partners were interviewed. A number of adult children were also interviewed.

In addition to the in-depth household interviews, we were invited by a number of people to visit their homes and to speak to them. One person even showed us how households were by-passing the 2.5A circuit breakers in order to enjoy a 20A supply at a 2.5A tariff. We also met with Mr Ndamane, who has a seat on the local TLC, in order to discuss the various development and infrastructural initiatives at Tambo, as well as to discuss his perceptions and opinions of the acceptance of the 2.5A supply. Finally, we organised one group meeting with men and another with women to explore issues around gender relations.

### 1.4.3 Quantitative questionnaire

The quantitative survey was undertaken during the October field trip. One hundred and sixty-eight households were included in the survey. The households included in the quantitative survey were of the same sample as Eskom's load research sample.

Four local women were employed to assist with the survey. They were selected at a community meeting. All those present at the meeting agreed that the community health workers should be selected to assist with the survey as they were most familiar with all the households at Tambo, as well as with the 'cultural norms of the people at Tambo'.

It is interesting that the chairperson of the village committee decided that no mention would be made of the fact that these people would be paid. He felt that it would have made it more difficult to choose people if he had. Rather, it was decided that people would be selected according to whether they were literate, reliable, available and unemployed. Although this could possibly be construed as unethical, it is interesting to examine the unintended effects of such a decision-making process. At Tambo, with the exception of one man, all volunteers doing work, such as brick making, community health work and so on, are women. This selection process resulted in women being selected for what the community perceived to be volunteer work. If mention of payment had been made, it is unlikely that women would have been included. The gendered nature of volunteer work is explored later in the report in more depth.

As mentioned previously, the survey has not been adequately analysed and most of the findings are not included in this report.

## 2. THE STATUS OF DEVELOPMENT AND SERVICE DELIVERY AT TAMBO

### 2.1 Introduction

This section discusses progress in development and service delivery at Tambo. It is intended to give a brief overview of the progress in the electrification project, as well as point to progress in other areas since the pre-electrification study (James 1996) was undertaken. Rather than provide a detailed description of the status of development at Tambo, this report should be read in conjunction with the pre-electrification study which provides background information on the village.

Most people in the group discussions argued that energy, specifically electricity, is not high on their agenda for development. More important are water, toilets, a fixed clinic, a community hall for recreation and telephones. Lack of job opportunities and lack of water are highest on the villagers' list of problems: 'If only we had factories and any other firms right here in Tambo we would not have problems with the flat rate payment.'

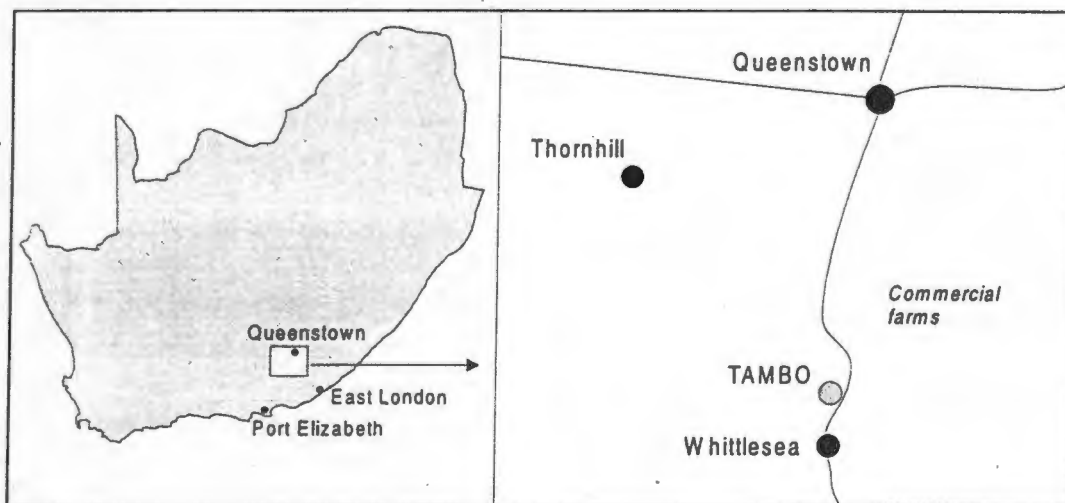


Figure 2.1: Location map of Tambo village

### 2.2 Other services, projects and problems

Most people interviewed felt that the Transitional Rural Council (TRC) was the most important body that oversees the development of services in the village. The TRC consists of eight elected members representing twelve villages in the Queenstown area. There are two representatives from Tambo on the TRC. According to the local chairperson, the TRC does not have real power, as everything is controlled by the District Council (DC) which has the power to make decisions. Money for development is handed from the provincial government to the DC and the TRC gets finance from this council to attend to priorities.

There have been many other activities running concurrently with the electrification program.

#### 2.2.1 Water supply

The extreme shortage of water at Tambo affects women and schoolchildren in particular, as they have to spend considerable time at the taps queuing for water. As the taps dry up frequently, it is normal for women to wait in the queue for more than an hour. The people's main concern is the dirty, unhealthy water that they have

to use. It came out in the group discussions that animals drink from the same source. However, almost all the households do not boil the water before drinking it, although people are aware of the effects of drinking contaminated water. They have not noticed any serious diseases, thus far, but they are almost certain they will happen at some stage. Those families who can afford it resort to buying water from the neighbouring farm at a cost of R100 a tank. They have to provide their own containers. Others get water from Whittlesea, also at a cost, as they have to pay for the transport. Hired transport charges R10 a barrel of water. People would rather have taps in their own yards and pay for water than obtain it the way they do.

The Housing and Local Affairs Department deals with the water supply problems. In 1995 an amount of R66 000 was made available by the Independent Development Trust for the purpose of building a reservoir. It is hoped that this will solve a lot of the problems outlined above. The water supply project was begun in 1994, and the actual building of the reservoir started in January 1996. At the time of the fieldwork the reservoir was almost complete - filling it with water being the only requirement. During both visits, there was no further progress with this project, as attempts to get water from new boreholes had failed, despite the Department of Water Affairs supplying machines and experienced operators to work on five new boreholes. Investigations are proceeding, and the TRC, with the help of some concerned women, is trying to identify possible new boreholes.

Tambo residents feel that, in addition to addressing unemployment in Tambo, water is the first thing that should be attended to by the government.

### 2.2.2 Toilets

A sum of R2,2 million was made available for toilets. This money was to be allocated to three villages in the RA60 area but there was no formula according to which it was to be allocated. The sanitation project at Tambo is scheduled to start in April 1997. The public toilets have already been drained and are ready for construction. The TRC member felt that the Housing and Local Government Department was, however, more interested in upgrading roads and the sanitation issue did not seem to be their priority, which explains why the toilets had been left for so long.

### 2.2.3 Roads

It was decided that as from February 1997, more work would be done on roads. R543 000 has already been handed down from the Provincial government to the DC. Work was first begun in McBride village which is part of the RA60 area.

### 2.2.4 Woodlots

R20 000 was obtained for the woodlot project, through which a five-hectare woodlot for making poles was begun. Twenty-four people were employed on this project, at a wage of R300 per month.

### 2.2.5 Telephones

The two call boxes that were installed at Tambo were vandalised. Neither were working at the time of the field visit.

### 2.2.6 Pensions

Until recently, most people had to travel to the pension offices where they originally received their pensions. Although most transfers have taken place, some have not been made and people still have to travel to places like Queenstown, Tentergate, Thornhill, and Dimbaza. This can be expensive and inconvenient. The villagers expressed the hope that the problem will be solved soon.

### 2.2.7 Brickmaking project

One of the most successful income generating projects in the village is the brickmaking project. Initially Operation Hunger brought a brickmaking machine to the village for this purpose. The idea was rejected by the community when it was realised that it would be voluntary work. A group of women came together after this had happened and asked for the machine to be returned so that they could start to work. Old Mutual had also assisted the project with R3 000. Although the women are very busy, none of them have taken home any money. They get their orders from the community itself, the largest thus far being for the community hall at Braakloof. The lack of water at Tambo is also a problem for the project, and they have once bought water for R50 from de Beer's farm. Another problem is lack of transport for delivery, which loses them customers, as people would rather buy from de Beer's farm which provides transport.

The women control the project completely, do their own banking and will not allow anybody besides themselves to take control. They all play a role in deciding what is to be ordered. None of them feels unimportant, as they all own the project. The TRC chairperson is involved only to the extent that he informs them of impending orders. They are an independent group and do not want any men in the project. It is the one thing that makes them feel empowered.

### 2.2.8 Community centre

The TRC was allocated R40 000 from the DC for the building of the community centre. During the first visit digging for foundations had begun, and work on the foundation was proceeding during the second visit. All the bricks for the centre were ordered from the local brickmaking project. The completed portion of the wall is currently being plastered. The workers are paid by the TRC. The supervisor, who is a bricklayer, earns R60 per day; two bricklayers each earn R50; and four labourers each earn R25. The project was scheduled to be completed in six weeks. At the end of every two weeks workers were laid off to give an opportunity for others to work. The tender for this project was controlled by the council. The centre is a 25m<sup>2</sup> building with three rooms, and currently serves as both clinic and offices for the committees.

### 2.2.9 School

At the time of the research the local school was almost complete. Some workers were, however, laid off, during the second visit, with the contractor waiting for its own carpenters from Queenstown to carry on with roofing. The school has thirty rooms: twenty four classrooms and six other rooms including the staff room. It is expected to be a combined primary and high school. Four classes are currently used in the school by Sub A to Standard 2, whilst Standards 3 to 10 still operate at the old school.

## 2.3 Progress in the electrification programme

All Tambo households have been electrified, except for those people who have recently moved to Tambo, and those whose houses are also still under construction - their owners can apply to the local agent for an electricity supply when they are ready.

During the electrification process, men were employed for digging trenches and for installing poles and boxes. To install the poles and do the wiring eighteen men were employed at a rate of R3.00 per hour. Each household was responsible for digging trenches from the pole to the house and was paid R1.50 per metre. The responsibility for installation of electricity was undertaken by Eksteen Le Roux, contracted by Eskom. Four men from Tambo, including the local revenue agent, were elected at a community meeting to do the work. They were trained for one week in a tent erected in the village specifically for this purpose. After training they were



employed for three months and were paid by Eksteen Le Roux Contractors according to the number of houses each had completed. They were each paid R80 for connecting a 2.5A supply house and R90 for a 20A supply house. The team in turn hired two more people to assist them.

According to the former TRAMC chairperson, most people in the village were busy with one thing or another over this period. Some were working at the school and others with the water supply project. Workers would be laid off occasionally so as to give an opportunity to others to do the work. He suggested that there was therefore no argument about who should be employed to install the electricity. There were, however, those who had a different perspective on this. Women, in particular, bemoaned the fact that only men had been employed on the project. Some women also pointed out that the requirement of a Standard 10 education for the post of 'sparky' discriminated against women, because the majority of women had not achieved that level of schooling.

The project started in November 1995 and was completed in March 1996, with the first houses being switched on in April 1996. Electrification was done in stages, with switching on taking place at the end of each stage. The Kwa-Notose section was switched on at the end of March 1996, followed by the section from Tokyo Sexwale street to Solomon Mahlangu at the end of April, and lastly, by the end of May the section from Solomon Mahlangu to the end of the township was completed. A total of 497 households were electrified, with 131 opting for a 20A supply, whilst 366 were connected to a 2.5A supply of electricity.

### 3. REVENUE COLLECTION AND CUSTOMER SERVICE

#### 3.1 Introduction

At the time of the fieldwork there seemed to be immense confusion and trouble with the operational management of the Tambo village project, especially with regard to collecting revenue, disconnection and ensuring that technical problems were resolved promptly. It is difficult to assess the source of each of the problems - each party had its own perspective, experience and understanding of the events. This section will explore some of the perspectives of the various parties involved in revenue collection and maintenance, as well as point to some of the important lessons which have emerged in relation to the devolution of functions, from Eskom to the local community.

#### 3.2 How the revenue collection system was supposed to work

Unlike the other 2.5A pilot project at Mafefe, no local agency was formed. Rather, it was decided to employ a local revenue collector at Tambo to:

- collect monthly flat rate payments from 2.5A households;
- issue receipts for payment;
- present copies of receipts to the Eskom Sales and Customer Service (SACS) office in Queenstown;
- inform the Eskom Queenstown depot and Elektrowise officers of any problems which people were experiencing with their electricity supply; and
- inform the workers from the Electrical Services Department of Public Works in Dongwe of any technical problems when they visited Tambo.

Although it was initially thought that the revenue collector would also perform some maintenance functions, this was not included in the final job description. The revenue collector was elected at a community meeting to perform this function for which he was paid R400 per month by Eskom.

The Eskom SACS office in Queenstown was responsible for processing payments and customer services. Close communication between the local revenue collector and the SACS office senior clerk was essential. On receipt of proof of household payments from the revenue collector, the senior clerk entered the information into the system. Initially payment had to be made by the 5th of every month to avoid being disconnected. Disconnection lists were generated according to the payment information received. Once people had paid their debt, usually comprising of one months electricity tariff plus a reconnection fee of R30, they were eligible for reconnection.

Disconnection and reconnection of households were the responsibility the Queenstown depot maintenance office and the maintenance staff of the electrical section of the Public Works Department in Dongwe. The SACS clerk informed the Eskom depot in Queenstown of households which had to be either disconnected or reconnected. This information would then be relayed to the Dongwe maintenance team who would go to Tambo - normally early in the morning - check with the local agent for any reported faults or problems, attend to them immediately, and also cut off defaulters and reconnect those who had paid their debt.

During the first field trip in September 1996, electricity was being cut off manually. Eskom was, however, in the process of introducing a remote disconnect system which would obviate the need to be physically present in order to disconnect households. Before this system was implemented, it was necessary to undertake an audit of all the households in Tambo to ensure that erf numbers, electricity numbers

and 'customers' names corresponded and were correct. By the second field trip, the remote disconnect was not yet fully operational as certain technical problems needed to be sorted out. Eskom Queenstown is hoping that this will resolve some of the problems which have emerged.

### **3.3 Problems experienced by community**

#### **3.3.1 Electricity disconnections and poor customer service**

Nearly 72% of households with a 2.5A supply had been cut off due to non-payment by the beginning of October 1996 - only seven months after the first group of houses were 'switched on'. As 20A households have pre-payment meters, disconnections only affected the 2.5A supply households which had to pay a flat rate tariff.

Being disconnected is perhaps the greatest source of discontent and unhappiness with the electricity project. This is a result of the fact that a reconnection fee must be paid before a household can be reconnected. We found a number of households which had a R75 debt which they had little hope of ever paying. This debt was so high because at the beginning of the project there was some misunderstanding about when people should begin to pay as they were given one month of free electricity. Also, as was the case for one household, for one of those months they were unable to pay the flat rate. Thus, three months passed before they were disconnected, and a considerable debt was accumulated.

By the end of August, 161 2.5A supply households had been disconnected, with a further 152 disconnections planned for September (Patrick 1996). With few reconnection payments being made, only 78 households were still connected to their electricity supply by the beginning of October. A further 54 households were to be disconnected (White 1996). By the end of November fewer than thirty households were connected. Clearly, this situation is untenable for both Eskom and the Tambo villagers. From the field research, it is evident that there are two broad reasons for the high rate of non-payment. The first lies with the circumstances and expenditure priorities in individual households which have resulted in their being unable to pay the flat rate. This will be dealt with in more detail in chapter four. The second reason lies with the revenue collection system and the disconnection process and will be discussed below.

#### **3.3.2 Payments were made and disconnections still occurred**

A frustrating and unnecessary problem experienced was that households were disconnected despite having made their monthly payment. Households which had settled their accounts did not appear on the SACS reconnection lists. Also, people complained that, even if they showed the Dongwe maintenance staff their receipts to the effect that they had paid, they were not heeded. The maintenance staff went ahead and cut off the supply anyway, arguing that they were not instructed to look at receipts but to cut off electricity. When we interviewed the Dongwe staff, however, they denied that they disconnected households if there was proof of payment. Some community members also made allegations of bribery against the Dongwe maintenance team and the local revenue collector. It was suggested that one could pay a certain amount to the agent or to the maintenance group in order to prevent one's supply from being cut off.

#### **3.3.3 Pensioners cut off**

The nature of pension payments often leads to wrongful disconnection of these households. Pensioners continue to be paid on a two monthly basis which makes it difficult for them to make strict monthly payments. Although some pensioners do manage to pay R30 every two months, others preferred not to and often found it difficult to make the second payment due to other expenditure demands.



It was also found that monthly payments to Eskom were to be made by the 5th of every month, after which, if payment had not been made, households are disconnected. However, pensions at Tambo are sometimes paid out on the 6th, 7th or 8th of the month. This means that pensioners were not able to meet their monthly payments, even if they intended to do so, before they were entered onto the disconnection list. Thus, pensioners are penalised for non-payment as a result of circumstances which are not under their control. It is not clear to what extent the disconnections were a result of Eskom's accounting system. However, we did notice that a number of households who intended to pay their monthly instalment once they had received their pension were on the disconnection list.

### 3.3.4 Maintenance

Some households complained of faulty electricity connections leading to temporary cut-offs. Others stated that they sometimes have to wait for a minimum of two days for the maintenance team. During this waiting time there is no way of communicating with the Dongwe maintenance team. People felt that they had to rely on the local revenue collector to communicate any faults experienced to Eskom or the Dongwe maintenance team.

### 3.3.5 Absenteeism

An issue of concern was the fact that many people were continuously absent for long periods from the village. Some did not even stay in the village for the greater part of the year but are still liable for payment. The SACS office felt that these people should take the initiative and notify the office personally and electricity would be cut off for those months. The SACS office staff felt that this was especially important given that they did not always get all the information they required from the local agency.

### 3.3.6 A question of who to report to

Many of the problems described above can be attributed to poor communication between the community members, who were faced with disconnection or other technical and maintenance problems, and Eskom. This, in turn, was largely a result of the inadequate way in which the local revenue collector fulfilled the role of facilitating communication between the end-users and Eskom. However, people at Tambo were unaware that they could also report problems directly to Eskom. When we raised this with some of the Eskom staff in Queenstown they felt that people 'should know - or otherwise you [the researchers] should tell them.

The problems facing community members led to many accusations and recriminations being made. Although the community was aware of how the agent was appointed, some people were unhappy with the way he did his job. However, most people we spoke to blamed Eskom for problems with their electricity supply. As the revenue collector supplied them with receipts after payment Eskom was blamed for wrongful disconnections.

## 3.4 Problems for Eskom

### 3.4.1 Cut offs not occurring

Every project has its share of problems which require time to solve. During our field trips we encountered some households which had not paid and had not been cut off.

I paid the R15 rent but then I missed one month. The electricity was switched off. I went to get some firewood and when I got back the electricity was on again. It hasn't been off ever since. I owe about R90 now including the reconnection fee. I explained at a meeting that I cannot pay. I haven't paid but the electricity is still on and I am not sure now whether there was something wrong or whether it was switched off.

It is difficult to establish where this problem lies. Eskom staff in Queenstown suggested that the problem lay with the fact that the erf numbers, surnames of household members and electricity names did not correspond with each other and thus, sometimes households which should have been cut off, were not.

### 3.4.2 Theft

On one field visit to Tambo the researchers were stopped by a young man who wanted advice on whether he should change his 'electricity box' to a 20A supply. As he was studying in Queenstown and only returned to Tambo on the weekends, he did not want to pay R15 every month for lights which he would only use on the weekends. He was able to demonstrate how he would swap the 2.5A circuit breakers in the ready-board and the outside pole with 20A circuit breakers. The researchers pointed out that this would not solve his problem of having to pay R15 each month, even if it was for a bigger supply and suggested that he shouldn't tamper with the equipment.

However, this method of stealing electricity has occurred in other households at Tambo. For R50 it is possible to change the 2.5A supply to a 20A supply. The individual who was apparently involved in this scheme stated that he had not heard of people changing the circuit breakers. Other people were also aware of this practice and some households which had a 20A supply 'for R10' were pointed out to the researchers.

### 3.4.3 Illegal reconnections

A further problem which faces Eskom and contributes to revenue loss at Tambo is that people can easily switch on their electricity supply at the pole when they have been disconnected. There is one particular person in the village who always switches on his supply despite the fact that he is often cut off.

## 3.5 The local agent's perspectives and difficulties

The local agent complained that he did not get the list of people to be disconnected from the SACS office. This would make his job much easier. Most people had cards with their account numbers on but some of them did not bring them along when they went to pay and he did not keep a record of those who had paid.

Some people do not understand that even if they have just paid, the electricity cannot simply be switched on because I have to take the receipts to the office. I have, however, not experienced cases where people start demanding their money back and I do not think people have a problem with me personally.

He did not, however, report regularly, as he had to wait for the complaints to accumulate. Another constraint was that he had to pay for his transport to Queenstown. He complained that he had not been paid for two months, without explanation; this was one reason why he was considering finding alternative employment.

He asserted that people failed to bring their electricity problems and complaints to him and then made it appear to strangers as if he was not doing his job. He also felt that one reason why people were so unhappy with the supply, although they were made aware of its implications in advance, is that they just accepted it without careful consideration:

People did not really think hard about the current-limited supply otherwise if they had thought carefully they would not be in this mess. They were told everything, but because people don't think alike and some do not think at all, they just accepted what they were told.

The local revenue collection agent believed that he was adequately trained for his job and the ongoing problems did not have anything to do with inefficiency.

### 3.6 Eskom's perspectives and difficulties

The SACS office had different views. They felt that the local revenue collection agent was inefficient. Cases had been reported to them of money paid for the flat rate and for reconnections of which they did not have a record. As a result, households that had paid had been disconnected.

The operations and maintenance manager felt that Eskom should have done more research than it did before electrifying dwellings with the limited supply. He felt that the supply would have been ideal for Tambo if it was 'in the middle of nowhere' but the fact that it was near Whittlesea and other villages, was making it difficult for people to accept (Parker 1996). He also felt that it was unfair for people at Tambo to pay the R200 for installation when people in other villages were paying less.

As far as the current-limited supply is concerned, Elektrowise staff emphasised that it was not their responsibility to cut off and reconnect the 2.5A supply defaulters. If, however, they happened to be at Tambo when these problems emerged, they would attend to complaints regarding disconnections, payments, and failure to reconnect and would then report to the SACS office in Queenstown. The Elektrowise officers argued that they had too many projects to attend to: the person responsible for Tambo has eight projects elsewhere and cannot spend all her time in Tambo. They usually go there once a week and sometimes only once in two weeks depending on their workloads in other villages.

There seems to be some resentment towards Eskom East London and head office from the Queenstown SACS office. The reason for this lies with the additional work load which the pilot project has brought, together with the fact that many staff members at Queenstown are opposed to the 2.5A supply.

#### 3.6.1 The local agent disappears

After our fieldwork, we found out that the local revenue collector had disappeared. The SACS office in Queenstown proved that he had received payments from residents and had issued them with receipts - but the money and record never reached the office. This was one of the main reasons why people would pay and still be in the dark for weeks thereafter. It was later alleged that some R2000 went missing when he disappeared. A new revenue collector has been appointed and, to ensure that money is not stolen, Eskom visits Tambo once a week.

### 3.7 Changes to the system

A workshop was to be held in East London on 7 November for the purpose of looking at various options to solve the problems at Tambo, particularly with a view to ensuring that people were not disconnected. One of the possible solutions would be to allow people to pay R5 a month for a 2.5A supply. There is, however, no national policy direction on this and no firm decisions have been made. Further decisions about the cost of the 20A connection fee and the cost of moving the 2.5A supply from a temporary dwelling structure to another permanent structure are also awaiting policy direction from Eskom Megawatt Park. However, the village leadership and some Eskom people held two meetings in November and December with a view to finding solutions to the ongoing problems regarding the project. Some of the most important decisions taken included:

1. The reconnection fee of R30 would be scrapped.
2. A vending machine for purchasing electricity cards would be installed at Tambo. Households with 2.5A supply would also purchase their electricity with magnetic cards, and the payment information would be fed automatically into the system. 20A supply owners would no longer have to travel to purchase cards.

### 3.8 Conclusion

#### Improving communication

It is clear that most of the problems experienced at Tambo were a result of the poor communication between Eskom and the community. Although these were largely a result of an ineffective and allegedly corrupt local revenue collector, there are also areas where Eskom can assist in improving the service provided to the Tambo villagers.

First, there is scope for improved customer service, especially with regard to ensuring that rural people understand the systems set up to provide them with maintenance and other services. It is important that community members know who to report to and what they can expect from the different role-players. Although we acknowledge that customer service employees are stretched and have many commitments, it is important that resources are allocated towards improving this service, even if this means employing more people and training them effectively.

Secondly, it is imperative that the cut off date for payment is flexible, especially with regard to pensioners who are not paid at the same time each month and are often paid later than the Eskom cut off date.

Thirdly, if Eskom employs a local revenue collector it is essential that everything is done in order to ensure effective communication. For example, the revenue collector should not have to spend her/his money on transport to report on information which is vital to the effective operation of the project.

#### Reconceptualising the revenue collection system

Perhaps the largest scope for improvement lies with a reconceptualisation of the system of revenue collection. One of the main problems with the revenue collection system at Tambo was that there were no mechanisms to keep the local revenue collector accountable.

It is easy to fall into the trap of believing that the selection of an individual at a community meeting is democratic and will ensure the accountability of that person. However, the situation at Tambo shows that this is clearly not the case. Although a new local revenue collector has been selected no mechanisms, except for more regular visits from Eskom, have been put in place to ensure accountability. It is important that mechanisms which ensure that both Eskom and the community hold this individual accountable are devised. Furthermore, there is the potential to reduce Eskom's role and increase the responsibility and function of a local agency. These functions could include some maintenance functions. In this way, the stress on the Eskom and Dongwe staff would be alleviated and the community would have better access to maintenance services. Also, the possibility of introducing a payment system with a local agency which is more flexible and takes account of local conditions should be explored.

A local agency which takes responsibility for many of the operational functions associated with electrification projects may well reduce the costs of servicing Tambo village. Although not substantiated with any evidence, it seems that the costs associated only with Eskom staff time has resulted in increased operational costs for Tambo. Although this is totally acceptable for a pilot project, it is not desirable for other current-limited supply projects. Devolution of responsibility and control to a local level may well ensure that the required cost savings are achieved.



## 4. THE RESPONSE TO CURRENT-LIMITED SUPPLIES

### 4.1 Introduction

This chapter will examine the extent to which current-limited supplies are accepted at Tambo. The reasons why households opted for either a 2.5A or 20A supply will be explored, with particular attention paid to the expressed need to control expenditure on electricity, as well as use electricity for cooking. We have attempted to separate out people's attitudes towards and experience of different components of the 2.5A supply option, namely, the flat rate tariff, the connection fee and the level of supply. Due to the high rate of disconnection, a large section of this chapter examines whether people are able to pay a flat rate tariff. The way in which people's livelihoods impact on the sustained use of electricity is woven into the discussion. The final section highlights the way in which gender relations have impacted on household livelihoods and electricity use.

### 4.2 Level of supply

This section aims to examine whether the level of supply provided by a 2.5A connection does provide for the electricity service needs of those at Tambo. The discussion will draw on the experience of both those households that subscribe to the 2.5A option and to those with the 20A supply.

#### 4.2.1 20A households use no more than 2.5A

The load research at Tambo village reveals that 56% of the sampled households with 20A (approximately 50% of the village) did not use more than 2.5A, with 70% not using more than 8A (Forlee 1996). It is tempting to use this data to argue for a particular limit on the level of supply. However, to do so would have the following shortcomings:

- there is little understanding of the appliances used in the household;
- there is little understanding of the factors which influence the electricity consumption in the different households;
- as the data analysed is for three weeks only, caution about generalising from the analysis is called for;
- the data provides a snapshot of consumption and does not allow for an understanding of changes which may occur over time;
- these results reflect the electricity consumption of households from one to four months after electrification, depending at which stage the households were electrified.

#### 4.2.2 Households opt for 20A

From a research perspective, it is fortunate that the pre-electrification negotiations at Tambo village led to a decrease in the connection fee for the 20A supply as this has provided useful data. Interviews with 20A household members revealed important information concerning the reasons for selecting a 20A supply above a 2.5A supply. For many households, these reasons lay with perceptions of, and problems expected with, the 2.5A supply option. While many 2.5A households share these attitudes, the circumstances in these households are such that they have not been able to afford, or prioritise expenditure on, a connection fee for a 20A supply of electricity.

Households opted for the 20A supply because they wanted to be able to use appliances, such as hotplates and stoves, which cannot operate with a 2.5A supply. The survey of 133 households conducted at Tambo revealed that 75% of the 20A households sampled chose this level of supply because they wanted to be able to use it for a range of electricity services not available with a 2.5A supply.

The in-depth interviews at Tambo corroborated this finding and provided insight into the circumstances in households that had led to this choice. It is significant that not all these households fall into the high income category.

#### Household 1: Spaza owner

In order to secure a home for herself and her family Zoleka moved to Tambo. As her husband was a migrant worker in Johannesburg she stayed with her mother-in-law at Hewu. However, as they did not get on she decided to move back to her parents home at Mbekweni.

I left for my home in 1990 because my mother-in-law and I were always fighting. I stayed at home from 1990 till 1992. In 1991 I came here to Tambo alone to get land. My father was refusing to let me come to Tambo without my husband. I knew my husband would be home on leave in August in 1992 so I took my two children and went to my mother-in-law's house. My husband then came back home with us.

Andile lost his job in Johannesburg in 1994 and moved to Tambo permanently. He gets work, for which he is paid R27 per day, on the various infrastructure projects in the village. At the time of the fieldwork he was part of a team building the school. He often worked for only one or two weeks in a month. For example, during the fieldwork he did not work for a week as they were waiting for the carpenters from Queenstown to finish their work. It is of great concern to them what will happen once the work at the school is finished.

It is very difficult for a man to work for a non-paying job because most men are used to working for money. And for a man to watch his family suffer because he is not able to provide for them is not a pleasant feeling. Even the small spaza shop which I started is a help in making sure that the children do not go to bed without food.

Zoleka has a small spaza shop which sells groceries, such as sugar, washing powder, oil, tea, as well as paraffin. She makes about R60 a day, never less than R40 – although she cannot say how much of this is profit. It is difficult to separate out the spaza and household budgets as they are managed together. Her mark-up on items is very low and it is unlikely that even a quarter of this amount is profit.

They keep strong ties with Zoleka's family. Her father had just given them a sleeper couch. Andile does not feel uncomfortable with this although if he could have it his own way he would provide for his family. He feels he will lose his dignity if he allows Zoleka's father to continue giving them too many things. Andile has eight oxen and a few sheep which his mother looks after in Whittlesea. Zoleka does try to grow vegetables, although the lack of water is a problem.

Household 1<sup>2</sup> chose the 20 A from the outset because Zoleka wanted to use it for cooking. On the first field trip to Tambo, she informed the research team that she was planning to buy a hotplate: 'I would like to be able to cook with electricity. It is only the way my husband works and gets paid which is discouraging.' On the second field trip, a month later, the hotplate had been acquired. Zoleka bought it with money which had been saved, and not on credit, as she resents the high interest rates associated with HP. It is interesting to note that Household 1 does not necessarily have a higher income than other households – in fact, it is variable and unreliable. With the use of the hotplate, the amount which was spent on electricity had increased from R5 to R10 per month. Although the hotplate is only used when cooking food which cooks quickly and the amount spent on electricity is only approximately equivalent to 37kWh of electricity a month, this service was clearly valued.

#### Household 2 - Reliable migrant support, pension and savings

For Nomonde, Tambo village presented an opportunity to establish her own home with sufficient land. Although she had worked as a domestic worker in Cape Town for most of her adult life, it was difficult to return to her mother-in-laws' home in Dimbaza when she and her husband retired in 1994. They were allocated land in Tambo and began to build their permanent house in 1993. Both she and her husband received pensions.

Nomonde has four daughters, two of which live with her. She also looks after four grandchildren, one belonging to her daughter, a teacher in Tarkastad, and the others to a daughter living in Cape Town. Besides her daughters and grandchildren, a young man of 20 also lives with Nomonde. He used to do the gardening for Nomonde's daughter who is a teacher. During the

<sup>2</sup> People referred to in this report have been given pseudonyms so that their privacy is respected.

holidays in 1995 he visited Tambo and has been with the household ever since. He attends school at Tambo.

In 1995 Nomonde's husband died. His death resulted in difficulties, as the household was accustomed to two pensions. However, Nomonde's children played a major role in ensuring that the household had sufficient resources to survive and enjoy a standard of living above the majority of households at Tambo. It is difficult now as she was earning a pension for two years when he died.

We used his money for groceries. It's good that the government pays us pensions, although others complain and feel that they can get more money. Old people must realise that their children have their own problems and cannot afford to support us. All my daughters have been very supportive and have bought furniture, especially the unmarried girl who is a teacher. It is important to have many children as some of them may help in the future.

Her daughter in Cape Town sends her R300 most months as a contribution to looking after her three children, whilst the daughter who is a teacher comes home on weekends with groceries. Her son has to date only ever given Nomonde R100, although he has promised to send more money to assist with paying of the outstanding debt on the building materials.

Nomonde has a modern brick seven-roomed house which was built over three years and is not totally finished. It is noticeably bigger and more elaborate than other houses at Tambo. Although Nomonde could not say how much she has spent to date, she has paid the builder R2700 for the current extension – three bedrooms, toilet and bathroom. A further R1800 for roofing material plus R1700 for building material is still owed to the suppliers in Queenstown. She has bought the material on credit and is paying this off in monthly instalments although she has not been able to pay the last few months' instalments.

Nomonde also belongs to a savings club, which gives her both access to savings on a yearly basis, and enables borrowing of money, albeit at a high interest of 30%.

Household 2 at Tambo, which survives on one pension and contributions from migrants, has a stove which is used to cook foods which require a short cooking time as well as for baking. Exposure to electricity in urban areas has resulted in the acquisition of a stove being prioritised – for instance, the daughter (23) dislikes using paraffin and wood because she has spent her life in Cape Town where she had access to electricity. Access to savings put away during her years of employment has enabled her put a deposit down for the hire-purchase of the stove.

Stoves, however, are not prioritised by all households. Hotplates are more commonly purchased and stated as priorities. Even in one of the households (household 3) at Tambo, where income levels are much greater than the average, only hotplates are used.

### Household 3: Extended use: high income

Phumi and Thandeka live in one of the larger, more 'luxurious' homes at Tambo. As well as their six children and one grandchild, they support two of their relatives' children. Phumi's mother also lives with them. One daughter (14) has had a child and another (17) has run away to her aunt because she is pregnant and her father was pressuring her to take him to the father-to-be.

I worry a lot about my children. They have disappointed me already, at a very young age I am a grandmother and will be again very soon. This kills me inside. All I wanted was for my children to get a good education because it opens doors to a better life. I can only hope that the others won't make the same mistakes. I do not care what they do, I will not discourage my girls from pursuing a career in agriculture for instance, although it is known to be a boy's career - they must do what they feel comfortable with.

Thandeka is actively involved in a number of community projects and political organisations. She is one of those who work at the brick-making project as volunteers in the hope that they will make some money eventually. She sometimes regrets the move to Tambo as she feels she used to do well in Mbekweni where she sold cold drinks and chicken pieces. However, she feels that the spaza shops at Tambo charge too little and that it would not be worth her while to set up a shop, even though she has both a fridge and a freezer. Phumi works as a carpenter in Dongwe. He earns approximately R2500 per month. However, he has monthly payments of R900 to make on a new bakkie. Other monthly credit expenses include clothing and linen store accounts and insurance policy payments (R300). In order to supplement his income for this he runs a taxi from Tambo to Queenstown, Whittlesea, Sada and Dongwe. He runs this taxi after work and during the weekend and usually earns sufficient income to cover the cost of his car repayments and maintenance. They have three cattle, two of them cows, five goats and twelve

repayments and maintenance. They have three cattle, two of them cows, five goats and twelve sheep. All of the nine chickens they had died a few months before the research. Thandeka does grow vegetables in her garden when there is sufficient rain.

Thandeka uses electricity for lighting, television, two hotplates (she has two others but they are broken) and two fridges. Prior to electrification the household used a generator to run the television. They also have a large gas freezer which is not in use as there is no longer a need for it. R50 electricity cards are bought and usually last for one month if the hotplates are used. Although both hotplates are used for cooking there are still some forms of cooking for which wood (baking) and paraffin (slow cooking foods, such as samp and beans) are used. Despite the higher income of this household, electricity has not totally displaced other fuels for cooking. Although this is partly due to the expenditure demands in the household, such as the car repayments, the specific cooking requirements in the household have also led to multiple fuel use.

There are a number of households which have selected higher levels of supply because they wish to use electricity for thermal applications, but they do not have the means to do so yet.

#### 4.2.3 2.5A households respond to the level of supply

Many of the women (with the 2.5A supply) interviewed at Tambo felt that the connection fee for the 20A militated against them being able to think about saving for, or purchasing thermal appliances. Although they were aware of the fact that it was possible to upgrade they felt that the poor were being penalised at Tambo if one compared the connection fees with other villages and urban areas:

Later you will find that people can afford to buy appliances but they must start afresh and get the 20A. If I had been Eskom I would have given something to people which served them better for longer.

The notion that the 2.5A was a short-term strategy for rural people was raised by others as well, due to the limited number of electricity services available with a 2.5A supply: 'I would do something that would be beneficial for the people in the future, a long-term thing, rather than just looking at now.' There were, however, a number of people who were happy with the level of supply. In fact, electricity represented a substantial improvement to the quality of life for many of the households interviewed, even when it was only used for lighting and media. These households expressed no desire to have access to a higher level of supply; for example:

- Mncedi (Household 12), a pensioner who lives alone with his school going children, is resolute about never acquiring appliances. As long as he is the chief breadwinner and decision-maker in the household it is unlikely that this will change.
- Households 10 and 11 will probable never prioritise expenditure on appliances due to their extremely impoverished circumstances.

It is very difficult to determine exactly which households, and under what circumstance, will need and/or be able to afford to use electricity for anything more than lighting and media. However, it is also not likely that circumstances or priorities within these very poor households will shift in the short term. This opinion was expressed by a number of households interviewed at Tambo. It is not conceivable, therefore, that a larger electricity supply will be needed by the very poor households. The provision of electricity for lighting and media alone is therefore appropriate.

Although there is contentment about the electricity services that are possible with 2.5A, the flat rate tariff of the 2.5A supply was the cause of much concern. The following sections will deal with this issue in more detail.



### 4.3 The flat rate tariff

#### 4.3.1 Controlling expenditure

An important reason for households selecting the 20A supply at Tambo was that they could control their monthly expenditure on electricity. Nineteen percent of the 20A households included in the quantitative sample at Tambo selected this level of supply because they wanted a pre-payment meter which gave them control over their expenditure. Fanelwa (household 5) described what had led her to opt for the 20A supply. Initially she was concerned that the energy services available with the 2.5A were limited:

The *umlungu* from Eskom came around a second time and explained to people how the 2.5A supply works, all the things it wouldn't be able to do. So people started worrying that they would not be using the iron, the heater, hotplate. So I thought that it was useless: I would like to be able to boil water quickly in the morning.

However, Fanelwa paid R10 for a 2.5A connection. Not being entirely happy with her choice she asked for advice from people outside of Tambo who had experience of electricity. 'I was advised by two men to upgrade to the 20A - with this I would not have to pay monthly. I had paid the R10, and so I paid the balance.' Thus, whilst the factors concerning both the limited service available, as well as the payment of this service were considerations, it was clearly the latter which was the overriding concern informing Fanelwa's choice. The pre-payment meter allowed for flexibility and control over expenditure.

#### Household 5: Pensioner and female headed household

As with many people at Tambo village, 61 year old Fanelwa's life has been shaped by apartheid land policies: forced removals, land allocation procedures based on allegiances to certain chiefs, and overcrowding. Tambo presented an opportunity for Fanelwa to gain access to land and improve her life:

One day we were travelling by bus and saw people from Dongwe and Sada toyi-toying. On inquiring we were told that people were demanding land. They demanded that the Boers who were occupying land owned by Sebe should be chased away. There was too much overcrowding at Zweledinga and there at Tambo they were giving away 50 by 50 land.

Abandoned by her migrant husband some ten years prior to her settling in Tambo, Fanelwa set about building a house for herself, four of her eight children and two of her grandchildren. It took three years and much effort to build the five-roomed house. Due to the water shortages in the village, the process of making bricks often required trips to the windmill at three in the morning to collect water. She also built a house for her pensioner mother.

During this time, the household survived on Fanelwa's income from informal selling activities and a contribution from her mother's pension 'which was very helpful as it would keep us going for some time'. An important, but infrequent, source of support was the money and furniture sent by her two migrant children in Johannesburg and the two in Cape Town. That she struggled to ensure that her household survived is evident:

I used to borrow money from people, go to Queenstown slagpan and buy binnegoed and then sell to other people, some refusing to pay me and others would beat me up when I demanded payment. It was very difficult, but we survived. That was how we made a living in those days.

The transient nature of rural household livelihoods reveals how survival mechanisms have shifted since Fanelwa first moved to Tambo. Her mother passed away a year ago. Notwithstanding other effects which her death may have had on household members, it is fortunate that Fanelwa had started to receive a pension shortly before her mother died or the effect of the loss of her mother's pension on the household would have been much greater. Two of her children, living in Cape Town, have ceased to send any money or have any contact with Fanelwa, although she is looking after two of her grandchildren. Her eldest son of 38 years, who had worked in Johannesburg, had an accident and is now living at Tambo. He is mostly unemployed, except for the piece-work he gets on community infrastructure projects, such as the construction of the school. The girlfriend of one of her other sons has also moved into the house, living with him in the outside room. This places stress on household resources as neither the son nor his girlfriend contribute to the household.

I do not like this but am worried that I will get into trouble with my son if I complain. What irritates me the most is that I must feed this girl and yet my son does not earn money. When I brought this up at the big meeting I was attacked by the men who asked why I had allowed such a thing to happen and that I must simply chase them away. This worries and disturbs me. I cannot make a decision and I don't know what to do.

A further concern for Fanelwa is that her eighteen year old daughter, one of the twins, is mentally ill. Her daughter assists her with some of the domestic work, such as fetching wood, water and dung. Fanelwa feels that it would be better if her daughter could go to a school where they deal specifically with mentally ill people. Her daughter in Johannesburg continues to support Fanelwa by giving money and buying furniture.

Fanelwa has also turned most of her plot over to vegetable gardening. However, due to the erratic and low rainfall in the region, the garden is not a reliable source of food. When the garden does yield a harvest, the crop is not sold but consumed by the household. Fanelwa also owns two pigs.

I love polishing and planting vegetables, but it is difficult with the water problems we have. This year we have not planted because there is no rain. Last year I ploughed and we had tomatoes, cabbages and mealies.

Makhaya and Nomsa (household 6) also decided to select the 20A supply once they understood that they would have to pay a fixed monthly rate for the lower level of supply.

We had put down money for the 2.5 but we thought about it as we were told that we had to rent R15. Because we know by the next quarter we have normally run out of money. So we realised we would not be able to pay the R15 sometimes, so we paid the difference and got the 20A. At least we could buy a card for R10.

#### Household 6: Double pension and migrant support

Makhaya and Nomsa are pensioners who were born in the Hewu district and started their married life in Thandagate. Caught in tensions around land when the Hershel people were relocated to the Ciskei, they left this area when people's houses were being burnt down. They moved to Sada where houses were scarce and when the opportunity of obtaining land at Tambo became possible they moved to Tambo in 1994.

Their two-roomed house took three years to complete.

We started from scratch. It took a long time to build this house. We used to borrow money. We still want to extend it as we feel that it is small. We must have a kitchen as we now cook in the sitting room and some of the children sleep here. We only have one bedroom so we must share the space.

Although Makhaya and Nomsa look after eight of their grandchildren they do not receive reliable remittances from the parents of the children.

I am very worried about him [their 36 year old son], it is about ten years now that he has not been home. We cannot tell whether he is alive. Especially with all these things going on in Johannesburg – the crime, the accidents. He just sent his young child. He just met someone that he knows and gave the child to him. We are now looking after the child at Tambo. We don't know where our son is. He does not phone.

A daughter, who has four children who live with their grandparents, is the only parent who sends money. However, she does not earn much and does not send money very often. She brought her parents a TV and a hi-fi on one of her annual visits to Tambo. Although they have planted vegetables in the past, the lack of rain during 1996 has not enabled them to plant this year. Thus, this large household of ten members survives predominantly on the two pensions which together bring in R820 per month.

Both Makhaya and Nomsa are involved in volunteer project work with the hope that they will eventually earn money. Nomsa is part of a group of women who run and work on the brickmaking project started by Operation Hunger. Makhaya is the only man in the whole of the village who works on a voluntary basis – on the fencing project. To date neither of them have made any money from the projects.

The desire to have pre-payment meters was overwhelming. Not one person interviewed was happy to pay a flat-rate tariff, and everyone mentioned their preference for a pre-payment meter. People with a 2.5A supply of electricity wanted

pre-payment meters so that they would be able to control their expenditure, spend less on electricity and avoid paying a reconnection fee. Mncedi from household 12 expressed the desire to upgrade. Given his circumstances, it is unlikely that he will be able to achieve this:

Even if I don't make much use of electricity, very soon, I will get the 20A so that I can save. I can get a card for R20, use it for two months maybe and not have to worry about a reconnection fee. But that will be in two years time, not now, if I didn't have to pay the R200, I would do it as soon as possible even in my mud house.

It is evident that some people were aware that they are paying more on a monthly basis for their electricity than those with a 20A supply:

I don't see the use of this 2.5A, in fact it is more expensive in the long run than the 20A.

Coupled with the concern that, on a monthly basis, people with a 2.5A supply were paying more than those with a 20A supply, concern was also expressed about the reconnection fee of R30 as it caused additional stress to the household budget:

The problem is the R200 [connection fee]. I want this bigger supply, because with it you can use far less than R15 a month and not worry about being switched off.

When asked what she would have changed about the project at Tambo, Patricia suggested that:

I would not have done it this way, I wouldn't. They don't wait for us, they don't wait for month end, they don't even tell you, this is where it's all wrong because you have to add more money, that's my only complaint, otherwise giving people electricity is good. If it was meant for poor people then that is not the way to go about it.

#### 4.3.2 Affordability

This section discusses whether a flat-rate tariff is affordable for rural households. Most energy studies link affordability with household income, suggesting that the major factor which determines energy use is the size of the household income. The results from the Tambo research show that such an analysis is hopelessly over-simple and inadequate. It was found that, while income is clearly important, there are other factors which determine whether people can afford to pay the monthly flat-rate tariff. Take the case of Mncedi in Household 12, whose pension supports him, four children and a baby. Mncedi is by no means better off than other pensioners. In fact, besides borrowing from neighbours and having the use of credit from the local spaza, the household relies solely on his pension for survival and has no other livelihood strategies.

Mncedi has absolutely no desire to acquire appliances. This is largely informed by the power relations, shaped by gender and age, within the household, where his daughters are responsible for the domestic work and have little control over decisions made in the household. It is significant that there is no senior woman in the household who is able to influence decisions. The gender division of labour means that Mncedi is not responsible for the reproductive work, such as cooking, and it is therefore unlikely that he would ever prioritise expenditure on any appliance useful for such work. Furthermore, his antipathy towards television as an instrument of moral decay and social degeneration has informed his decision not to acquire one. Mncedi only makes use of electricity for lighting one room in his two-roomed house. Although he has a radio it does not have an electric connection and he still pays R8 per month for a battery.

### Household 12: Male-headed household

Mncedi is a sixty five year old pensioner who lives with four children: two girls aged 18 and 15, an 11 year old boy and a 15 month old grandchild. His 21 year old daughter, the mother of this baby, had disappeared five weeks before the fieldwork for the research. She was in Std 9 when she fell pregnant. He pays R40 per month to the woman who looks after his grandchild.

His wife died of cancer in 1994. They moved to Tambo in 1991 from Sada because his wife had been accused of witchcraft and was in danger – they had been attacked several times.

Mncedi and his children live a simple life, with few modern conveniences. His greatest wish now is to extend the house and buy more furniture. The only furniture which has been bought is a kitchen cupboard. It was bought on hire purchase by his wife shortly before her death and has recently been paid off.

Although by no means without conflict, Mncedi has ultimate decision-making powers within the household.

In my time woman would not argue with you, now even my daughters argue with me. Sometimes they tell me where to go. The world is all wrong. It's that Mr What-you-call? Mr Madiba who created all this confusion, by giving these women a chance to talk, argue and discuss things with us. This education has spoil things.

His daughters do all the domestic work once they come back from school. He spends most of his day listening to the radio, visiting friends or the shebeen. Although he prioritises his needs he does take the responsibility of raising his children seriously. Mncedi is vehemently opposed to television as he believes that it corrupts the youth:

I have no intention of buying a television set at all as I cannot stand all the dirty things I see on TV. In fact if I gets to a house where they are watching TV I leave for the shebeen instead or go back home and listen to my radio. Television has corrupted children so much. We grew up knowing that certain things can only be done at night, in the dark, in the privacy of a man and his wife, but now children engage in these things in broad daylight, I would not be surprised if my own daughter fell pregnant during the day, in this house, maybe when I had gone to Whittlesea for my pension. The worst thing is that the very people in the government are encouraging children to use these "rubbers", and then encouraging them to abort if they get pregnant. What is going to happen now is children will be queuing in the hospitals and doctors' surgeries for abortion if they don't try to do it themselves, because they have the permission from higher authorities.

Of his R410 pension per month approximately R300 is spent on groceries. He buys them from a local spaza shop on credit. He pays off his debt every two months when he receives his pension, but then purchases more goods on credit. The only item which he buys for cash is beans, which he gets for R25 from a woman at Tambo. Paraffin costs them R1.80 a litre and they use two a week. He does not believe in buying in bulk because things do not last as long. He is also suspicious of his children and believes that they sell the groceries he has bought.

He is aware that he is not saving money by having electricity and resents having to pay each month as sometimes he worries about whether he will be able to make his payments. Although his preference is for a card system, so that 'I can save', Mncedi has managed to pay for his electricity every month.

Unlike many pensioners who have the responsibility of looking after a number of grandchildren, Boniwe (household 16) copes well because her pension is not the predominant source of income in the household. In fact, her daughter who returns home each weekend is responsible for ensuring that food, fuel and any other needs are provided. Boniwe's pension is used to pay for those needs which may arise whilst her daughter is away. As a teacher, her daughter earns a salary which is beyond the reach of the majority of rural dwellers. Besides these sources of income, Boniwe also owns a number of goats which are slaughtered on special occasions and which can be sold in times of need. Mealies are also grown in the yard. Thus, with a relatively high income and a diverse number of livelihood strategies, they have not defaulted with their payment for electricity, even though there are fourteen grandchildren to feed, clothe and educate.



### Household 16: Pensioner with fourteen grandchildren

Boniwe, a pensioner, is originally from Lady Frere in the Transkei and recently moved to Tambo from Sada. She lives with and is responsible for her fourteen grandchildren. They live in the home of her one daughter, who is a teacher in Dongwe. The daughter returns to Tambo on weekends. Boniwe is currently building her own house - some way from her daughters home.

Most of her grandchildren are teenagers. Their parents are living in a range of urban centres. Boniwe complains that it is very difficult to look after all the children because they are always fighting, especially about who is responsible for various tasks. The children all have chores to do at home and the girls and younger boys collect wood and cowdung after school. The eldest boy always takes the wheelbarrow to the river or the tap to fetch water. He also looks after the goats.

The household survives on Boniwe's pension, with remittances sent from her migrant daughters when they can afford it. Her daughter who is a teacher at Dongwe brings groceries when she returns on the weekends. Between the two field trips Boniwe went to Cape Town to visit her son who is in Polsmoor Prison. She was unable to see him and had to spend R190 on the taxi-fare to Cape Town. The church helps her to deal with the e pain of having a son who is in jail.

Boniwe believes they spend close to R400 on groceries, although most of this money comes from her daughter who is a teacher.

Nosandla (household 8) has also managed to pay for electricity each month. Although she receives approximately R100 per month more than a pensioner does, she has a large number of children to support. Cooking is always done on a wood or dung fire and paraffin is seldom used. Prior to electrification, paraffin and candles were used for lighting. She used to spend approximately R10.20 each month on fuels for lighting - one bottle of paraffin each week (R1.80) and one packet of candles (R3.00). Although she had a television, bought on credit from the store in Whittlesea for R390, she has only used it since she received electricity. Being able to use her television is clearly what motivates Nosandla to pay her monthly charge for electricity. Also, as she can rely on her networks to provide for her needs, she can afford to pay R15 a month: 'I would rather go without food than not pay the R15 for electricity as long as I know that I will get something from the neighbours.'

### Household 8: I am poor

Nosandla lives in a one-roomed house at Tambo with her seven children and one grandchild. Everyone at Tambo considers Nosandla to be one of the poorest people, if .not the poorest person, in the village. Nosandla herself feels that she is very poor:

I am poor because I don't not have money to fend for myself and my children and I am relying on this money from welfare. I think things would be fine if at least I had R3000 or R4000 every month. Maybe the government can make it possible for me to get this money. It has been much harder since my husband died. His pension together with the grant made life better for me but now since he died I have definitely got poorer.

She has few possessions: all the clothes, papers and small items are packed into three suitcases in the corner of her house. Her sagging bed, a rickety bench, a broken chair and a small kitchen cabinet are the only furnishings. Food is cooked on a fire on the floor of the poorly ventilated house. Nosandla's health is poor and according to her is worsened by her smoky environment. Nosandla gets R1040 every two months from the state welfare grant she receives for four of her seven children. Although one of her sons works as truck driver in KwaZulu/Natal she does not ever hear or receive remittances from him. Due to her poor health she has never grown any food, but she has access to credit at the store in Whittlesea where she usually has an approximately R400 debt. The household sometimes has only one meal a day.

There is no question that Nosandla is poor, and she may well be amongst the poorest of the poor. However, the knowledge of her poverty and the 'high profile' this receives in the village makes it easier for her to borrow. Unlike others we interviewed she is not embarrassed about borrowing. Alongside the welfare grant, borrowing from others is an important livelihood strategy.

I borrow almost everything: food, money, fuel and an iron from my neighbours and from my brother and mother in Whittlesea.

Unlike the households discussed above, Household 9 has more livelihood strategies: pension, informal work, credit, livestock and a vegetable garden. However, it has

been unable to pay the flat-rate tariff and has had its electricity supply cut off. The main reason for this is that the husband has prioritised expenditure on his cattle over and above the needs of the household. Thus, the ability to buy food, and pay for the electricity has been compromised. The gender relations of power within the household are such that the husband is able to assert his needs over those of the other household members.

#### Household 9: Pensioner - livestock priorities

Ndoda and Ntombo were both born in Lady Frere. When they got married they moved to Dimbaza near King Williamstown where they lived and worked as factory workers for 16 years. When they visited their cousin at Tambo they decided that they would like to move there and started negotiating for a place of their own. The cousin, who was on the village committee, helped with the arrangements and they moved to Tambo in 1994 prior to the national elections.

Ntombo is 47 – 21 years younger than her husband. They have four children, three of whom are at school. The oldest boy is 22 and he dropped out of school (Std 10) in June. He has been a source of worry to his parents as he started wearing dreadlocks, smoking dagga, associating with 'bad' groups and then dropped out of school. Although he already has his own piece of land for the time when he wants his independence, he stays at home 'doing nothing' except for taking responsibility for herding the livestock. They have five sheep, ten goats, a number of chickens and about ten cattle.

Their primary source of income is Ndoda's pension. As he still gets it from Dimbaza, he has to pay transport costs in order to fetch it. Ndoda supplements the household's income by fencing people's yards, for which he earns about R250 per job.

Besides the expense of daily living, a major expense in this household is the lucerne which is bought to feed the cattle. The lucerne costs R150 and lasts only ten days. Ndoda's cattle are very important to him and he 'would rather go without food than see his cattle die of hunger because of the drought'. Although the household benefits from the availability of sour milk, the ability to meet other household needs are clearly compromised. According to Ntombo, her husband is

very strict and aggressive but he is a good husband and father. He has matured through the years as he used to beat me up when we were newly married. If I had gone to collect firewood and came home much later than expected I would be beaten.

Although this no longer happens, it is clear that Ndoda makes all the major decisions and determines where his pension moneys are spent. Money to support his drinking also places a drain on the household resources:

He drinks a lot but the good thing about him is that he sleeps a lot when he has had a lot to drink, he does not bother anybody, he only does when he is sober.

Finally, Lindelwa of Household 10 is extremely impoverished. It is not surprising that she cannot afford to pay for her electricity at all. However, it is interesting that despite her desperate situation, she does not use a wood or dung fire (which are free) to cook with. The reason for this is that she has a set of beautifully kept enamelled pots which her mother gave to her. Rather than ruin them on a fire, she will not cook food if she has no money available for paraffin.

#### Household 10: No income - cut offs

Lindelwa, a woman in her mid thirties, lives alone and has been at Tambo for four years. Prior to moving to Tambo, she lived with her family at Sada. She moved because 'we were overcrowded at Sada, staying with my sisters and brothers, I needed my own space. We all have children.' Lindelwa as a seven year old daughter in Sub A. The daughter stays in Sada with Lindelwa's sisters and brother and comes to Tambo during the holidays. Her child's father left her when she was pregnant and did not help with maintenance. She is not worried about not having a husband: 'it's easier this way for me, nobody tells me what to do, a husband would give me many children and then not look after me'.

Lindelwa is a trained traditional healer who depends entirely on income derived from this work for survival, and lives from hand to mouth:

They pay me a consultation fee of R30, this they must pay before I can attend to them, some never pay the balance and I never see them again, so I depend entirely on what I get from people. Sometimes I go without any money for the whole month.

One of the problems is that her client base is not well established in Tambo village:

Although I am this small and I know some people look down on me because I am a woman, most people recognise my good work. People don't know me that much here in Tambo, but where I come from people used to respect me even though I am small, I had many patients there, that is why I have only one patient in Tambo. That is where I got my name Nontando bedela/ Nozabedela (*I am liked even though small and therefore I may be looked down upon*)

Survival is a struggle. During the first field trip she did not have any money and was borrowing food from her neighbours. At the time of the second, she explained that she had survived because someone who owed her R40 paid her and she was able to buy a few groceries. As long as she has paraffin, mealie meal and maybe a loaf of bread, she is satisfied.

All the households discussed above fall below the absolute poverty line, whereby the minimum level of welfare required by a rural household of two adults and four children is taken to be R723 per month (RDP 1995). However, such a distinction is not necessarily useful in determining whether households will be able to pay a flat rate tariff of R15 per month. The discussion above illustrates that, in fact, there are a range of factors, which together with income, influence this and that these will differ from one household to the next.

For the very poor, such as Household 10, there is little to discuss. They can clearly not afford to pay R15 every month. The situation is a little different, however, for households which depend on state pensions and welfare grants for their income. Both the results from the survey and the in-depth interviews revealed that the pensioners were amongst those households which found it difficult to pay the flat rate tariff. Although there is a steady income, the ability for households to absorb any crises or unusual demand on their financial resources is limited. It is unlikely that such demands will be met without compromising other needs. The examples above reveal how expenditure was prioritised at one point in time. At other times, different needs may be prioritised.

It is crucial, however, that electricity should not exacerbate a household's energy poverty or further compromise its ability to survive (refer to chapter 5 for a detailed discussion on the impact of the flat rate tariff on household energy budgets).

#### 4.3.3 Unstable, unreliable and infrequent rural incomes

Another important aspect of rural incomes is that they are unstable, unreliable and infrequent. Project work on the infrastructural projects, such as water, electricity and construction of the school, is an important source of income. Work on projects is neither full-time nor consistent. What households will do in order to survive, once this project work is completed is not clear. Nkuleko (household 11) is anxious about what he will do once the project work is finished.

##### Household 11: Unreliable project work

Nkuleko and Nothembele live at Tambo with their four children. They moved from Hewu, arriving at the beginning of 1995 when 'everybody who was looking for a place to stay was welcome in Tambo'. They started building their permanent home of four rooms in March 1996 and the structure was completed in June of the same year, although details such as plastering and glazing of windows are still incomplete. As the household no longer has a regular source of income, they cannot afford to buy materials or pay for labour.

Nkuleko used to be a mineworker in Welkom. He was retrenched and now the only source of income for the household is the 'piece work' he gets on projects in the village. At the time of the fieldwork, he was employed on the water project, where a reservoir was being built. Sometimes there is no work for weeks at a time. Also, there is a limit to how long these infrastructural projects will provide work to the village residents.

There is similar evidence from other households and one is continually struck by the transient nature of rural households. Take the case of Mthathi (household 13), who is a farmworker on one of the neighbouring farms. He and his wife, Nosizwe, and four children live a very fragile existence. His work as a farmworker gives him access to resources, such as chickens to sell, which enable a diversification of livelihood

strategies. However, the small wages do not provide a sufficient buffer against poverty when crises arise. So, the death of the chickens presented a serious blow to the resources in the household. Even more serious is Mthathi's ill health. As he is afraid that he will lose his job, he will not seek medical attention. However, his condition is likely to get worse if he does not. Although he is aware of this he does not feel he can put his family at risk by losing his job. This choice may not seem rational to those of us who are better resourced to absorb crises and unexpected demands. However, in the face of few opportunities there is little scope for Nosizwe and Mthathi to take a long-term view.

#### Household 13: Farmworker wages and poor health

Nosizwe (28) and her husband Mthathi (30) live in a one-roomed shack at Tambo. They moved from Dongwe, where they lived at Nosizwe's parents' house, in 1993. They have three children. One of her children died in infancy. Nosizwe also has an older son Roro who is 17: she was 12 and in Sub A when she gave birth to him. Her mother had to bring both of them up at the same time, teaching her how to handle, feed and wash the baby. Nosizwe does not think this has affected her negatively as her mother was always there. The boy, Roro, lives with them and he and his stepfather have a very good relationship. He passed his Std 2 but did not continue, he now wishes he was studying but thinks the younger kids will laugh at him if he went back. He has to help with fetching water and wood or otherwise go without food.

Mthathi is a farmworker who earns R130 a month. His wages are supplemented with a monthly ration of 20kg bucket of mealie-meal and a daily 2 litres of milk. They seek help from his pensioned mother when it gets very difficult for them to survive. They also used to buy chickens at the farm and sell them for R20 each. Thirty two of their chickens died in April.

They are concerned about Mthathi's health. He has a growth in his intestine and has been hospitalised before. He has been to doctors several times and has been advised to go for an operation but is afraid of losing his job and dying on the operation table.

Where households are overwhelmingly dependant on pensions for survival it is important to recognise that the death of the pensioner will have a dramatic effect on the household as the primary (or often sole) source of income is removed. Similarly, households dependant on the remittances of migrant husbands or children often have variable and infrequent income. The amount remitted may vary and/or there may be some months when no remittances are received. Phumla (household 17) is one of the few households at Tambo who receive regular migrant remittances. Although Phumla trusts that her husband will send her money each month, she has little control over whether he will actually do this. Although she is engaged in other livelihood strategies: keeping cattle, belonging to a savings club, the loss of this money would have a profound impact on her ability to ensure the survival of her household.

#### Household 17: Migrant remittances maintain two homes

Phumla, 49, and her children moved from Lady Frere to Tambo in 1995 when they heard that people were getting land. Her husband came first to negotiate land for themselves.

She lives with three of her children: a twenty year old boy, two daughters aged 13 and 10 and a grandchild. Her other three children, two girls aged 23 and 21 and a 15 year old boy are still in Lady Frere. They continue to maintain this home as they have thirty-four sheep in Lady Frere which need looking after. They have not been able to move them to Tambo. She would like her children to move to Tambo so that she does not have to maintain two houses. This will probably happen in 1997.

In Tambo they have three cows and a calf. Although they do not get enough milk from the cows, they provide ample dung for fuel.

Her husband works in Cape Town. She is not aware of the nature of the work her husband does or how much he earns. 'I will never ask him. I am just satisfied with the money which he sends me.'

Her husband sends her money every month. She trusts that he will always look after her. He sends her approximately R200-R300 a month. When she has run out of money she borrows from their savings club which charges 30% interest.



The point is that the flat-rate tariff militates against households paying less for their electricity. Also, households had to pay a reconnection fee when they had defaulted on their payments and were disconnected. Whilst the 20A households are able to discontinue their use of electricity without paying a reconnection fee, 2.5A households expressed the feeling that they were being penalised because they were too poor to afford the R200 connection fee for the 20A supply.

Take the situation of household 7, who when they got access to a 20A supply of electricity had the means to buy a range of appliances and furniture for their home. However, with the dramatic change in the circumstances of the household these plans have been forsaken. Despite this, the household continues to have access to electricity, albeit for lighting and media because they can control their expenditure on electricity and spend less than R15 per month.

#### Household 7: Dramatic change in circumstances

Sara, a 54 year old woman, lives with her children in a seven-roomed house. Her husband is currently living in Kayelitsha, where together with their children, they both lived for the past thirteen years. They only established a home at Tambo at the beginning of 1996. The household structure is a little complicated, with both Mr and Mrs Paul having had children with other partners.

Sara has two sons aged 36 and 33, and two daughters aged 26 and 29. According to Sara, her sons are irresponsible and troublesome and she has no idea where they are. Her daughters, who live in Cape Town, on the other hand, have assisted her and her husband in the recent times of hardship. Steven has a son, who lives with Sara at Tambo as his mother died last year. He is an epileptic and lives on medication. Sara is very stressed by the boy's behaviour as he has fallen behind and is unhappy at schools.

Steven and Sara have had two daughters, aged 12 and 14 who attend school at Tambo. For four months of this year, the two daughters and the epileptic boy stayed without their parents at Tambo. The neighbour and the 17 year old daughter of a friend of Sara's looked after the children.

Sara stayed in Cape Town during this time as her husband had lost his job and she had to work as a domestic worker to earn money. During this time she and her husband sent them R30 and a box of groceries every week.

They spent approximately R20 000 on their house at Tambo, R15 000 on building materials and R5000 for labour. One window is still not complete and the house is not wired. However, because Mr Paul lost his job, it is difficult to find enough money to feed themselves, let alone complete the house or buy furniture for it.

There is at present no income for this household as the husband is not working. He used to work for the Khayelitsha Council earning R5000 a month. As a member of the National Party they lost all the seats in Khayelitsha. They had hoped that they would at least work for the provincial government but that too did not work out. This worries Sara a lot, she is even thinking of leaving the children alone again for some time to try and find work in Cape Town.

There is absolutely nothing I can do locally. I do not know how I will survive in a place without job opportunities. Until my husband finds a job I will have to endure the hardships of Tambo or leave the children alone again.

The house is used for church purposes, with the United Methodist Church members gathering there every Sunday. She does not charge them for the use of her house because she is also a member of that church. They have less than 40 members so it is under control. They contribute R10 monthly towards the church. She is a member of Women's Manyano so every Saturday from 2.00pm to 3.00pm she attends meetings.

They had hoped to start a business of their own and to buy a car in order to sell vegetables, meat, fruit and other small things. The worst thing is that her husband has not received his moneys from the Council so they do not have any capital to start anything.

Finally, the unreliable manner in which pensions payments are made has also made it difficult for pensioners to make payments on time at Tambo. Very often, pensioners are paid as late as the 8th of every month. This means that pensioners are not able to meet their monthly payments, even if they intend to do so, before they are disconnected. They are penalised for non-payment as a result of circumstances which are not under their control. This is clearly something which can be resolved

with Eskom's accounting departments. A further complicating factor is that pensions are paid out on a two-monthly basis at Tambo. According to recent developments in the welfare policy arena, this should be standardised. Until such a time, however, it is important that Eskom is flexible and facilitates the payment for electricity in a way which is suitable for these households.

#### 4.4 Connection fee

The pre-electrification study (James 1996) pointed out that people at Tambo were unhappy that they were paying a R200 connection fee for a 20A supply of electricity while people in other rural and urban areas were paying only R45. These sentiments have not changed. In fact, there have been marches to Mr Ndamane's (TRC member) home to protest against the electrification project and, in particular, the high connection fee for a 20A supply. Mr Ndamane expects more trouble in the village as two nearby areas, Mbekweni and Ngoji, are being electrified. It is expected that this will create more conflict and planned marches, especially if the connection is to cost much less than R200. The neighbouring villages on RA60 - Braamkloof, Mcbride and Merinowalk - are also prioritised for electrification in 1997. It is clear that the conditions at Tambo will have to be sorted out before the plans for these villages of RA60 are finalised.

#### 4.5 Gender relations and electricity

This chapter has shown how the livelihood strategies of various households have influenced the type of electricity supply obtained, as well as on the sustained use of electricity. In much of the discussion there is reference to the way in which the social relations of gender have influenced livelihood strategies and expenditure priorities within households. Before going on to examine the affect of electricity on energy use, it is worthwhile including further discussion of the findings concerning gender relations and livelihood (including energy) strategies. Although a vast range of issues emerged in our interviews at Tambo, it was impossible to follow up everything. Thus, there are gaps and the analysis presented below is certainly not the last word on gender and energy at Tambo. This section will present some of the useful insights which emerged.

##### 4.5.1 Gender relations: decision-making about the electricity supply and appliance acquisition

As mentioned in Chapter One, many previous energy studies found that some women did not have control over resource allocation decisions when it came to major expenditure on energy, such as the purchasing of appliances. However, the interviews at Tambo have revealed that this is not true for all households and it is important not to generalise this assumption across women and across households.

The gender relations in household 1 are complicated. Zoleka, a thirty-two year old woman, was in standard nine when Andile, her husband, organised her abduction and forced marriage negotiations through the practice of *ukuthwala*.

A cousin of mine was married to a girl in Andile's village. That is how it started. I used to visit her. My relative helped Andile to take me and keep me locked up for three days. Lobola was then arranged and we were married in 1984. I was very disturbed by this and tried to negotiate ways of continuing my studies as I wanted to become a teacher. I wrote to the Lutheran Scholarship people who sometimes help people with school fees. Nothing was successful, so life had to go on. I had never met my husband before and I was not in love with him when we got married. I decided to make the best of my marriage, although if I had a daughter I would not like her to go through what I went through. This I will teach to my boys.

Social conventions operate to make it virtually impossible for the woman to return to the home of her parents when there is the intention to marry and a process has begun to achieve that end. This would bring disgrace on the family.

My father was against the marriage and he was prepared to come and fetch me and let me continue with my studies. He was, however, powerless to do anything and so we were married.

This tradition had effectively removed Zoleka's ability to choose her own partner, and constrained the opportunity to become educated and perhaps qualified to earn an income and have a career as a teacher. Thus, it is evident how the social relations of gender have mediated Zoleka's life opportunities.

Despite entering into her marriage on unequal terms, it is evident that the power relations are not entirely oppressive or unequal. For instance, the decision to move to Tambo was made by Zoleka. She informed Andile that she was moving to Tambo when he was on leave from his job in Johannesburg. She has also started a spaza shop over which she has total control. Decision-making within the household takes place jointly and Zoleka does have some control and is able to influence the allocation of resources within the household. So, while Andile may expect to have control over decision-making processes in the household, Zoleka is able to challenge him and assert her opinion and needs:

We always discuss things before a decision is reached on things. I always regard him as being traditional, that he expects me to listen to him but always we argue about things and many times he will say I must do things the way I see fit and right. Not in a bad way because he understands and respects my point of view.

Thus, the decision to install a 20A supply of electricity and buy a hot plate were made.

Amy from household 14 also entered her marriage through *ukuthwala*:

I did not want to get married to him. I had agreed to marry somebody else and was leaving for Cape Town. I told my sister that I was going. She told everyone and my mother helped him to fetch me from the station before I could get on the train.

However, the circumstances and gender relations in the household are totally different. Although she and Mandla have been married for fourteen years she is still resentful of how she came to be married.

It's not right. I was aware that it's not right but I had no control over it and I didn't want to disappoint my parents. Some women turn out to be suicidal when they are forced to marry men they do not love. Sometimes I start wondering if things would have been different if I had been married to the person I loved.

Amy also runs a spaza shop, although a much larger one than Zoleka's. Amy, however, does not have control over the income which is derived from it. She works long hours in the spaza and is assisted by her eleven year old daughter after school has closed.

My husband does not like to work in the shop. He's the one who brings ideas but does not involve himself. He started the idea of a shop and he was helpful in setting it up. He's the one who counts the money each day and then he gives me money to buy stock, such as the bread and milk which is delivered here. He buys all the other stock. We discuss what is needed, he checks the shelves and then he goes alone to Whittlesea.

Mandla chose to install the 20A supply in the house and the 2.5A in the spaza shop without consulting her at all.

These two households show how gender relations manifest themselves differently in each household. Both Andile and Mandla have exercised structural power in ensuring that they marry the women they want. Unlike Zoleka who is in a position where she is able to assert her needs and opinions, Amy has little control over resource allocation decisions within the household.

In only one of the other households in the sample did unequal gender relations result in the woman having no control over the decision on what level of supply to get. Phumla's husband of household 16 made the decision to have a 2.5A supply of electricity. Although he is a migrant and only returns home once a year, he made the decision without discussing it with Phumla. In fact, she was absent from Tambo when he paid the connection fee and she only found out about this once installation began.

Interviews with other people in the sample revealed that decisions about appliance acquisition were made jointly. Thus, a simple cause and effect analysis on gender relations and decision-making over resource allocation are not necessarily true for all households. What is evident, however, is how gender relations affect other livelihood strategies and how this indirectly affects energy or electricity use. As mentioned in an earlier discussion, the gender relations in household 9 are such that the Ndoda has ultimate control over resource allocation decisions. Thus, expenditure on cattle fodder is prioritised above expenditure on other items, such as food and electricity. These relations of power indirectly impact on energy use by directing resources away from energy, in this case electricity, regardless of the needs of other members of the household.

#### 4.6 Conclusion

This chapter has explored the extent to which the 2.5A supply option is accepted by households at Tambo village. There are a number of levels at which the response to the 2.5A supply can be assessed. With the high rate of disconnection in the village, it is not surprising that the feeling towards the 2.5A supply and Eskom is extremely negative. The flat rate tariff looms large in people's perceptions of the 2.5A supply and overshadows the positive aspects of this supply option. With certain changes, there is clearly a role for current-limited supplies in the electrification of rural areas. The key findings are summarised below:

##### Level of supply

- A number of households opted for the 20A supply option so that they could use electricity for cooking. These households did not necessarily fall into a high income group. In fact, households reliant on one pension or less per month also prioritised expenditure on hotplates/stoves so that electricity could be used for cooking.
- The very poor households in the sample were quite happy with the level of supply as it was not likely that they would ever prioritise expenditure on appliances. The provision of electricity for lights and media only was, thus, entirely appropriate.

##### Connection fee

- Many of the women in the 2.5A households felt that the connection fee for the 20A militated against them being able to think about saving for or purchasing appliances. They felt that the poor were being penalised because they were not able to pay R200.
- People at Tambo village continue to feel that, when compared with other rural villages and urban areas, a connection fee of R200 is inappropriate.

**Flat rate tariff**

- An important reason why households selected the 20A supply was so that they could control their monthly expenditure on electricity.
- The desire for pre-payment meters is overwhelming. Not one person interviewed was happy with paying a flat rate tariff.
- It was shown that, together with size of household income, other factors influenced whether households were able to pay the monthly flat rate.
- The flat rate tariff is not appropriate because it is inflexible, requiring consistent payments at the same time each month. Such a tariff does not take account of the shifting circumstances and priorities in rural households, where the ability of households to absorb crises or unusual demands on their financial resources are limited.
- Gender relations influence the expenditure priorities in households which in turn impact on whether households will be able to pay their flat rate tariff each month.
- Oppressive gender relations within a household do not necessarily mean that women have no control over the decisions with regard to electricity and energy.



## 5. THE EFFECTS OF ELECTRICITY ON ENERGY USE

### 5.1 Introduction

This chapter aims to understand the shifts in energy use which result from access to electricity, and in particular the affect of the 2.5A supply on household energy use. We believe that a description of household energy use will not add any value to the knowledge we have of energy use in rural households. Rather this chapter will discuss the effects of electricity on the energy choices and use with regard to specific energy services. So, for example, we will examine how households with access to electricity ensure that their lighting needs are met, what fuel and appliance shifts have occurred and what constraints are placed on their enjoyment of the full benefit of electricity. The electricity services of lighting, media, refrigeration, ironing clothes, heating water and cooking will be examined. Following this, the impact of the flat rate on household energy budgets, as well as the way in which different people value electricity will be explored.

H'hold	Lighting: number of rooms wired		Radio	TV	Fridge	Iron	Kettle	Hotplate	stove
	Inside	Outside							
<i>20 Amp households</i>									
1	2 of 2							1	
2	3 of 7			1#	1				1
3	4 of 6		1*	1	1 (1gas)			2, 2#	
4	4 of 5		1*	1*	(1gas)				
5	2 of 2		1 (hi-fi)	1					
6	5 of 5		1*		(1gas)				
7	1 of 7		1 (hi-fi)						
<i>2.5 Amp households</i>									
8	1 of 1			1					
9	2 of 2	1	1*	1*					
10	1 of 1		1*						
11	2 of 4		1*	1			1		
12	1 of 2		1*						
13	1 of 1	1							
14	1 of 2		1*	1					
15	2 of 3			2			1	1#	
16	1 of 3		1#			1			
17	1 of 4		1 (hi-fi)	1					

\* appliances which cannot be operated with the electricity supply

# out of use or broken appliances

TABLE 1: Electricity appliances in households included in the qualitative sample

### 5.2 The use of electric appliances and electricity

The findings discussed below will show that multiple fuel use is common in all households and that electricity did not seem to displace other fuels. Before discussing this in any depth, it is useful to examine the appliance ownership of the households in the in-depth sample to provide an overview of the trends which are emerging with regard to the use of electricity.

Table 1 shows appliances owned by households in the in-depth sample, including both those appliances which are used, as well as those which are owned but not used. Due to the sample size, these findings cannot be generalised. However, they do point to some interesting trends and will be explored more fully in the discussions which follow.

Only six months after electrification, there has been little acquisition of appliances. Appliances which are expensive, such as fridges and stoves, have been acquired either as gifts from migrant children or through hire purchase.

### 5.2.1 Lighting

At Tambo, candles and paraffin are still being used for lighting. The main reason for this lies with the fact that households have not wired all the rooms in their homes. Although the electrification kit provided to 20A households differed from the 2.5A kit, the end result is the same: Eskom only provides electric lighting in one room. For the 20A supply, households are provided with a three-plug socket ready-board and equipment for one light - bulb, flex, and fitting - to be hung from the ceiling/rafters of roof. Households with a 2.5A supply were provided with a 'mini-board' which included a one-plug socket, as well as a light fitting which attached to it.

Eskom does not provide materials or undertake to wire other rooms in the houses. Thus, households have to bear the material and labour cost of wiring other rooms. The quantitative survey undertaken at Tambo suggested that only 24% of the households had wired rooms other than the one in which the electricity was installed, with more than 60% of these households wiring one additional room only.

The results from the in-depth sample confirm these results. With the exception of household 7, the 20A households included in this sample had electrified more than one room. As was evident from the discussion in the previous chapter, household 7 was planning to wire each of the seven rooms and use electricity far more extensively than it does. However, due to the dramatic shift in circumstances, it is unlikely that extensive house wiring will now occur. One light bulb is suspended in the rafters and used to light the two end rooms - the kitchen and bedroom.

Lighting was taken to other rooms in a range of different ways. Very broadly, households used either extension cords or conventional flex. In household 4, an extension cord had been plugged into the socket and strung through the rafters to the next room, where a light fitting was attached and the cord was further split to reach another room. As with other houses, the method of wiring seemed unsafe. However, Fanelwa did not know how to evaluate whether the wiring which had been done in her home was safe due to her unfamiliarity and lack of knowledge of the safety aspects of electricity.

The amount of money spent on house wiring differs enormously from one household to the next - with the amount paid ranging between R20 and R450. It is interesting that most of the elderly pensioners, such as those in household 4, 5 and 6 were totally unaware of what materials should cost. In all these households the sons had taken responsibility for buying materials and wiring the house.

The cost of materials differed greatly: households using extension cords, rather than flex, paid more to take electricity into other rooms. The amount spent on labour also differed. While there were no labour costs where household members, usually sons, were able to wire other rooms, it seems that some households paid exorbitant fees for this service. As a result of the unfamiliarity with electricity and a lack of knowledge about what materials were necessary, many people were at the mercy of others who could exploit their lack of knowledge and charge high prices for their services.

It was found that the placement of the ready-board is an important consideration, especially where wiring of the house is not anticipated in the near future. Phumla,

from household 16, arranged for her 'mini-board' to be placed in the kitchen-cum-living-room alongside the doorway into the bedroom so that the light would also shine through to the bedroom.

I don't use candles since I have had electricity. I used to buy one packet of candles a month, with one candle lasting three days. The paraffin lamp is now only used when we move to the other room. We use the light in the early mornings and then at night the children have more time to do their homework. I used to try and save on candles - but now I don't have to do this. I used to be strict about this and tell the children: 'Remember there is a tomorrow'.

Considering that the very small migrant remittances support the household members at both Tambo and Lady Frere, it would be impossible for Phumla to use that money to wire her home. It is unlikely that Phumla would ever wire her house without additional support from her husband.

An interesting phenomenon has occurred at Tambo. As the mini-board includes a light fitting which is sealed and water proof, a number of households have moved this light fitting outside. It is probably a direct consequence of the type of mini-board and electrification kit provided, that more 2.5A households than 20A households have installed an outside lamp. It is worth mentioning that outside lighting was high on the list of priorities which emerged in the pre-electrification study (James 1996), due to its perceived safety benefits.

Finally, it was also found that electric lights were sometimes not used for reasons which had little to do with the cost of wiring the house. Individual preferences and idiosyncratic behaviour also inform energy use. Fanelwa of household 4 did not use her electric light in her bedroom, even though it had been wired: 'I am now old and it is not good for me to get out of bed to turn the light off. For this reason I still use my paraffin light.'

And Mncedi from household 12 also does not feel he needs a light in his bedroom:

My bedroom doesn't have a light. I don't really need a light. I know where my bed is, as long as I can light my pipe and the curtain is still open I can find my way. Sometimes I light a candle and quickly extinguish it. As far as I am concerned it can last for a month but I cannot tell. I never think about it as I am an old person.

### 5.2.2 Media

In the in-depth sample, only the households which owned hi-fi systems were able to use electricity to operate them. None of the households which owned radios were able to operate them with electricity. Most of the radios bought at Tambo have no internal mechanism to use electricity and there are no conversion mechanisms available. This places an additional burden on household energy expenditure as dry cell batteries must still be bought to power the radios. Examination of household budgets in the section to follow will show that there is little cost saving to be had due to the continued expenditure on batteries and other fuels.

Televisions also continued to be powered with car batteries. Although not widespread, there were a number of households where televisions tripped the electricity supply when switched on. All of these households had previously run their televisions on car batteries. Thus, in addition to paying for electricity, these households continued to spend money on charging car batteries.

### 5.2.3 Refrigeration

Four of the seven households in the in-depth sample had fridges: two had gas fridges, one had an electric fridge, and the other had both an electric and a gas fridge. Those households with electric fridges had acquired them once the



electrification project began. Nomonde, from household 2, had bought the fridge on hire purchase, whilst Thandeka, of household 3 was given the electric fridge as a gift by her niece. None of the households with the 2.5A supply had fridges or mentioned that they would prioritise the purchase of one.

Ntombo from household 1 was the only person who stated that she wanted to buy a fridge. She runs a small spaza from her home and wishes to expand her business to include chicken pieces and other perishables. Apart from her, none of the other people interviewed expressed the desire to acquire fridges or use the fridges they owned for income generating purposes. In fact, Thandeka, from household 3, had run a spaza shop in Sada, where she lived before moving to Tambo. She had investigated the possibility of doing the same at Tambo but had decided that the profit to be made was not worth the effort: 'These people here only charge very little and so the competition is too great. If I charged what I wanted to I would never make any money.'

Amy, from household 14, who also ran a spaza, sold milk which was delivered every second day from one of the local farmers. She, however, said that it was not necessary to have a fridge as the milk never lasted long enough to go off.

Other people, such as George from Household 6, who had gas fridges, wanted to examine the possibility of converting their fridges to electricity as it was believed that it would be cheaper. The gas fridge is no longer used in household 4 where an electric fridge has been acquired.

#### 5.2.4 Irons and kettles

The reason why these two energy services will be discussed together is because both these appliances were developed by Eskom to work with a 2.5A supply. Furthermore, the only irons and kettles in the samples were the ones which were supplied by Eskom. Thus, at the time of the fieldwork no-one had prioritised expenditure on these appliances.

Interviews with the women in the households included in the sample suggest that irons and kettles are sought after and have been prioritised for future expenditure in a number of the 2.5A and 20A households. It is interesting to note that none of the 20A households prioritised the purchase of irons and kettles above hotplates. Also, in almost all the households irons were prioritised above kettles. All of the women interviewed in the 2.5A households knew that 'special irons and kettles' had been developed to work with the 2.5A supply of electricity.

The 2.5A households gained access to the low watt kettles and irons by having paid an initial amount of R40 by the end of June. This amount included the connection fee of R10 and the first two months flat rate tariff of R15 each. Eskom hoped that this 'offer' would act as a 'carrot' to households to make the due payments. However, many of the households which had paid this amount, had in fact already paid R40 for the connection fee which was established at the outset of the project in early 1995. Thus, they were not required to make any monthly payments. There also seemed to be some confusion as to when payments should begin as the first month of electricity was free. For this reason, some households felt resentful that they had not also received an iron or kettle. It is also interesting to note that the TRC member who had been instrumental in bringing electricity to Tambo had both a kettle and iron.

As only two households in the sample were given a kettle, it is difficult to assess whether the kettle was appreciated despite the fact that it took a long time to boil. Nothembile in household 11 liked her kettle, although she did not use it regularly as it took too long to boil. During one of the interviews with her we put the same amount of water in the kettle and in a pot on her flame stove to assess which would take the shortest time. The water boiled quicker on the paraffin flame stove. Nothembile said that if she was in a hurry she would not boil water in the kettle.

Patricia from household 15, on the other hand, used her kettle whenever she wanted to make tea. However, she had been cut off and had not been able to use it: 'I am really suffering now because I cannot watch TV. I also have a kettle from Eskom and I am missing it very much because I now have to use the flame.'

Both women revealed little understanding of how electricity worked. Patricia suggested that she 'used to be very scared to use the kettle, but I just waited for one of my children to help with it'. Nothembile stated that she thought that 'the kettle takes about 25 minutes to boil. But, I think it is getting used to the electricity now because it used to take much longer.' Further, Nothembile had little knowledge of how to derive the maximum benefit from the kettle. For instance, she had not thought to use it as an energy saving device when needing to boil water for cooking. We had a discussion on how she could use the kettle to boil water and then transfer the boiled water onto her flame stove when she required it for cooking food, such as porridge. In this way she could save money on paraffin by using electricity, which was already paid for, for part of the cooking process.

As mentioned previously, there is a need for Eskom to educate people who have not previously had access to electricity so that the maximum benefit from this energy service can be derived and so that people have a better understanding of electricity.

Only household 16 in the sample had been given an iron: 'I am one of the lucky ones who got an iron from Eskom. I really enjoy my ironing now as it is much easier - I don't have to light the flame.' Phumla stated that she would never have been able to buy an iron. As discussed in Chapter 4, the circumstances in this household make it impossible for her to prioritise expenditure on any items other than those very basic requirements for survival, such as food.

Giving appliances to people for free is not a sustainable development practice. It is, however, apparent that measures to make appliances more accessible are important if people are to enjoy the full benefits of electricity supply. However, credit schemes which do not exploit people with high interest rates could be explored as possible ways of enabling people to acquire appliances. Furthermore, in the event that 2.5A supplies are implemented more widely, it is important that low watt kettles and irons are easily available in rural areas. Not only must a marketing strategy ensure that these appliances are accessible, but attention must be paid to ensuring that they are also cheap.

### 5.2.5 Cooking

Chapter 3 shows that some of the households selected the 20A supply specifically so that they could use it for cooking. This section will briefly sum up the findings with regard to this.

Two of the 20A households have hotplates and one has a stove. Ntombo from household 1, bought a hotplate between the first and second research field trips with money that she had saved. Thandeka, of household 3, has four hotplates - two of which do not work. She brought the two broken ones with her from Whittlesea, and the other two were bought for cash a few months before the electricity was switched on. She did not attempt to fix the broken hotplates as she wanted to get new ones. Nomonde, of household 2, on the other hand, had bought a stove by using her savings as a deposit for hire purchase. None of these households had switched over completely to using electricity for cooking. In all of these households paraffin was the predominant fuel used for cooking, with wood and dung fires also being used<sup>3</sup>. Food which could be cooked quickly was cooked with electricity:

<sup>3</sup> The pre-electrification study (James 1996) suggested that only very poor people use dung for cooking and space heating. However, the individual household interviews in this study suggest that the use of dung is much more widespread than this. The reason for this is possibly lies with the social stigma which is attached to admitting to the use of dung for fuel.

- in the mornings water was boiled and porridge made on the hotplates/stove;
- in the evenings, fast cooking vegetables, such as cabbage; soups, occasionally fried meat and *umngqusho* are cooked on the hotplate/stove;
- tea was also made in the evenings;
- besides the applications mentioned above, the stove in Nomonde's home is used for baking and for keeping food warm in the oven.

Two of the households in the 20A sample are likely to purchase appliances for cooking. Sbongile of household 6 suggested that she would like to acquire a hotplate. She is a full-time worker in Whittlesea and feels that she will be able to buy a hotplate. However, she will wait until she has the money saved before she buys one as she is not in any rush. As her husband is old and of ill health and his two sons are mentally ill, a woman from Tambo is employed to do the domestic work in the household during the week. In this way Sbongile is relieved of the responsibility of cooking when she returns from work.

Nomsa of household 5, on the other hand, stated that she was hoping that her daughter would help her by buying a stove or hotplate. The gas stove, television and hi-fi were all bought by her daughter and it is likely that a hotplate could be acquired in the same way. She would prefer a stove as she would be able to bake - her current cooking arrangement suits her with paraffin used for most of the cooking and gas used on occasions when she is in a rush as she finds gas much quicker.

It is difficult to assess whether these households will actually enact their desires and acquire a hotplate or stove. As we have seen, circumstance and priorities in households can change quickly. However, for both households the acquisition and use of such an appliance is feasible.

For the other two households in the sample, however, it is not conceivable that hotplates or stoves will be acquired in the near future. Unless the circumstances improve in household 7, where the husband lost his job as a councillor after the local government elections, there is little possibility of a hotplate or stove being purchased. Also, Fanelwa of household 4 is unlikely to prioritise expenditure on a hotplate or a stove. Firstly, Fanelwa owes R3000 on the room divider she bought for R5000. When we expressed disbelief that such an item of furniture - which was made from veneered chip board - could cost as much as this, Fanelwa showed us her credit book from the store from which she had purchased it. She had been able to acquire the room divider because her migrant daughter helped her to pay her monthly instalments. As her daughter had also bought her a gas fridge we were interested to know whether Fanelwa would request that her daughter buy her a hotplate or stove. She, however, said that cooking on electricity was not something which she had ever wanted or thought about. She was happy using wood and paraffin for cooking.

In the in-depth sample there was only one woman with a 2.5A supply who had a hotplate. Although Patricia knew that she was not able to use a hotplate with a 2.5A supply she often tried to use it:

I also have a hotplate which was a gift from my daughter-in-law who lives in Cape Town. I have tried several times to switch on my hotplate. I put it on level three, it gets warm and then trips off the electricity. I do this as it would make life much easier for me if I could use it. I was warned that I could not use a hotplate on the 2.5A supply. Besides, I have five flame stoves which I use for cooking if I am not cooking outside.

It is impossible to draw generalisations from this very small sample about the conditions in households which will lead to the prioritisation and eventual purchase of hotplates/stoves. The discussion presented above suggests that this process is not simple and it is not appropriate to predict such behaviour on the basis of income.

### 5.3 The impact of electricity on household energy budgets

One of the most important issues to examine is the impact of the 2.5A flat-rate tariff on the household energy budgets. To explore this it is important to examine whether electricity places a financial burden or leads to cost savings for households. In the interviews we asked whether people felt their energy expenditure had changed since their homes were electrified. Most of the households did not have a clear idea of the impact of the flat rate tariff on the household budget. However, women were able to say whether they felt they were using, and in some case buying, less or more of certain fuels. Notwithstanding the difficulty of obtaining accurate energy expenditure data, table 2 contains the pre- and post-electrification expenditure on energy of the 2.5A households included in the in-depth sample. Clearly, expenditure on energy is influenced by the fuels used in the households, particularly the extent to which certain 'free' fuels, such as wood and dung, are used.

The flat rate tariff has had the least impact on the budgets of households 1 and 16. It is interesting to note that both these households did not use radios and thus, did not spend R8.20 (at least) on batteries per month. When households are required to pay for both batteries and the flat rate tariff, the impact on their budget is enormous.

Household	Cut off	Expenditure prior to electrification	Expenditure after electrification	Increased expenditure
8		R10.20 (paraffin, candles)	R15 (elec)	R5
9	*	R50.15(paraffin, car batt, candles ,battery)	R58.20 (paraffin, elec, car battery, battery)	R8.05
10	*	R14.80 (candles, paraffin, battery)	R26.20 (paraffin, battery, elec)	R11.40
11		R40.60(paraffin, battery, candles, car batt,)	R47.20 (paraffin, battery,elec)	R6.6
12	*	R38.20 (paraffin, battery, candles)	R45.20 (paraffin, battery, candle)	R7
13	*	R20.75 (paraffin, candles)	R28.80 (paraffin, elec)	R8.05
14		R63.15 (paraffin, battery, candles)	R81.20(paraffin, 2.5A elec,batter, pre-payment elec)	R18.05
15	*	R32 (paraffin, car battery charge)	R39(paraffin, elec)	R7
16		R30.40 (paraffin, candles)	R35(paraffin,elec)	R4.60
17		R51.40 (paraffin, candles)	R63(paraffin,elec)	R11.60

Table 2: Pre- and post-electrification expenditure on energy of 2.5A households

Prior to electrification, Phumla of household 16 used paraffin for lighting, ironing and sometimes for cooking. Since electrification, very little paraffin and no candles are used for lighting. Only when members of the household use the third room in the house, which is unfurnished and very rarely used, is a paraffin lamp used:

I am saving paraffin now because I am not using it for lighting and ironing. I got an iron from Eskom. I used to buy 1 litre of paraffin every 2 days and now it is not as much as this. Sometimes I only go every 3 or 4 days.

The iron which she received from Eskom has also resulted in less paraffin being used. Although her overall expenditure on energy has increased by R4.60, she has managed to pay her monthly flat rate, even though she receives very little money each month.

As Nosandla of household 8 used wood and dung for cooking, her main energy expenditure is on fuel for lighting. Since electrification she no longer spends money on paraffin and candles which were her fuel sources for lighting prior to electrification. Although her energy expenditure has increased, the energy services



of the household have also expanded as a television has been used since the house was electrified. If the television had been used prior to electrification, costs similar to the increased expenditure with electricity (R5), would have been incurred on a monthly basis. However this would have been achieved with considerably more effort as the car battery would have to be transported to Whittlesea. Even more importantly, the initial capital outlay for a car battery is far more than that of a 2.5A electricity connection. Another important factor which has affected the energy expenditure in household 1 is the number of rooms in the house. As there is only one room, the factors which militate against the wiring of other rooms do not apply, and thus use of other fuels (candles and paraffin) for lighting is not necessary.

For household 10, however, the impact of the flat rate tariff has been great and has increased Lindelwa's energy expenditure by more than double the amount spent on energy prior to electrification. Unlike household 8, Lindelwa does not like to use wood or dung for cooking. However, the amount spent on paraffin for cooking, (R3.60) per month, is small when compared with the amount spent on batteries for her radio (R8.20). Together with the money spent on batteries, candles (R3.00) for lighting account for more than half of her total energy expenditure. Electricity has only displaced the use of candles for lighting as her radio does not work with electricity. In effect, her expenditure on lighting has increased from R3.00 to R15. In the face of such poverty, it is little wonder that her electricity has been cut off. A similar situation existed in household 13. Although electricity has displaced candles, expenditure on lighting (for a one-roomed house) has increased by R8.05 from R6.95 for two packets of candles to R15 for electricity per month. Although the household was cut off, Mzoxolo managed to pay the arrears with his meagre (R130 per month) wage and they were reconnected.

In addition to having to continue to buy a battery for the radio and use paraffin for lighting the rooms which are not wired, household 9 also has to pay to recharge the car battery for the television. Rather than present an opportunity to save money through use of electricity for lighting and media, the flat rate tariff places a burden on households as electricity does not displace other fuels. As Ntombo, from household 9 said: 'You have to buy paraffin and pay for electricity. We understand that we're not saving anything by using both. It would be better if we just concentrated on electricity.'

Household 14 has also experienced a high increase in their energy expenditure since electrification. However, this is a result of them paying both a flat rate tariff at the spaza shop and having a 20A supply with a pre-payment meter at their home. In both the house and the spaza electricity is only used for lighting and television.

Some of the women we interviewed were aware of the potential cost savings of having a 2.5A supply:

Because sometimes I don't have paraffin and I would be wanting tea and I realise that I would be saving from buying paraffin because all that would come out of the R15. And I could also iron if I want, although I would start with the kettle.

In all of the 2.5A households, energy expenditure has increased since electrification. With the exception of households 8 and 16, the flat rate tariff has impacted negatively. This discussion has highlighted three key issues:

- Where fuels for lighting, batteries for radios and televisions are not displaced by electricity, energy expenditure is significantly increased. This especially true of radio batteries as they are expensive.
- The more appliances (radio, televisions) which cannot be used with electricity and the more number of rooms which require wiring, the greater the increase in energy expenditure.



- As paraffin is a versatile fuel, it can be used for cooking, ironing and lighting. Large amounts of the households' energy budgets in the sample comprised paraffin. This does not seem to have decreased significantly. In fact, only one woman suggested that she was using less paraffin since electrification. This was because she was no longer using it for ironing and she did not use it as extensively as other households for cooking.

#### 5.4 The value attached to electricity

Considering that the a 2.5A flat rate has an adverse effect on household budgets it is surprising that some households still continue to pay their flat rate tariff. This may be because people like having electricity and value the service provided by it. It is, however, difficult to determine exactly what people value about electricity, as it is often the service, such as listening to the radio, which people attach value to. So, although Mncedi from household 12 did not use electricity for his radio, he clearly valued listening to the radio:

The radio programme, don't tell me you don't listen to that. That is where you get all the knowledge. Because I never went to school, I listen to that programme. Because I'm old I don't sleep well, I switch on and wonder at what is happening in the world. But I like it, it is very informative: if you stay in a place like this, you need that kind of programme.

However, as mentioned previously, Nosandla from household 8 liked electricity primarily because she could watch television, while Phumla from household 16 valued her electricity supply because she had an iron. She felt that ironing was much easier with electricity because when she used her paraffin iron she had to constantly wait for the iron to become warm. Phumla was the also only person who mentioned that she valued lighting.

It is interesting that only these two women with a 2.5A supply of electricity suggested that they valued the service they had. Other households, had not had a similarly positive experience of their electricity supply. Thus, one of the biggest problems in assessing how people valued electricity, was the way in which the issue of the flat rate overshadowed every conversation. For instance, when asked what they valued about electricity Ndoda of household 9 suggested that:

We agreed because this place is too dark and we wanted something at least for a start. We did not realise that it would turn out this way. What beats me the most is we don't know how long we will be paying this R15. Will our children continue paying this? Something has to be done.

In fact Ndoda was so unimpressed with Eskom that he was very reluctant to speak to us. His attitude had worsened by the October field trip - on arriving at his house we discovered that they had been cut off. He was so angry that he suggested that 'Eskom come and take that box away. We would rather go back to candles if we are going to miss one payment and have to pay R45 for that.'

The women from the 20A households who had hotplates were particularly happy with being able to cook with electricity. As Boniwe from household 17 stated:

I am the government's daughter: the government looks after me so I am going to have a better life - like the one I was used to when I stayed in Cape Town. I welcome this electricity that allows me to cook and to use a heater when I feel like it

And Zoleka from household 1 who had recently acquired a hotplate said:

I wonder if I had known what I know now if I would have supported this 2.5A. The 2.5A is definitely not right: more so because you can't use it for cooking. Cooking is most important to me as I hate making fire outside.

Although some of the people interviewed suggested that they would like to use electricity for other services, it was not prioritised because of other needs:

I would like to be able to use electricity for other things, but at the moment it is not important to me. I need furniture, and I want to buy a table with chairs and pay off the cupboard. I am even thinking of extending this house because of the children. Why then would I worry about buying all those things for electricity in a mud house without chairs, table, to be honest you people, it is enough that we have lights.

## 5.5 Conclusion

### Multiple fuel use

This chapter has shown that multiple fuel use is common in all households and that electricity did not displace other fuels. Both 20A and 2.5A households have very few appliances. A greater number of 20A households have more than one room wired than do 2.5A households. The key findings with regard to multiple fuel use are as follows:

- Candles and paraffin are still being used for lighting as not all rooms have been wired. This is a result of the cost of materials, as well as the cost and availability of labour.
- Electricity is not used to operate radios and televisions. Radios do not have internal mechanisms to use electricity and there are no conversion mechanisms available. Thus, dry cell batteries were used. Some of the televisions were found to trip the electricity supply and these households continued to use car batteries to power the televisions.
- Fridges were not extensively owned or desired by the households interviewed. It was found that only households wishing to use refrigeration for income generation purposes wanted to obtain them.
- Besides the irons and kettles given away by Eskom, none of the households had prioritised expenditure on kettles and irons.
- Hotplates are prioritised above kettles and irons.
- Three of the seven 20A households used electricity for cooking in conjunction with other fuels such as wood and paraffin. Only food which cooked quickly was cooked with electricity.
- Although it is difficult to assess whether households will enact their desires and needs and acquire a hotplate, it is likely that at least two of the 20A households will acquire hotplates in the near future. The circumstances in the households will facilitate this.
- Other 20A households will not prioritise expenditure on hotplates as cooking with electricity is not considered important. This attitude was especially prevalent amongst older women pensioners and households which consisted of men only.

### Impact of the flat rate tariff on energy budgets

- Energy expenditure has increased in every household since electrification. It was found that where fuels for lighting, batteries for radios and televisions are not displaced by electricity, energy expenditure is significantly increased.
- The greater the number of appliances which cannot be used with electricity (radio and television) and the more rooms which require wiring, the greater the increase in the household's energy expenditure.

## 6. KEY FINDINGS AND CONCLUSIONS

### Acceptance of current-limited supplies

This report has explored the extent to which current-limited supplies are accepted by rural people at Tambo. It was found that the negative experience and perception of the flat rate tariff overshadowed all discussions on the electricity supply. With the high rate of disconnection in the village it is not surprising that the feeling towards the 2.5A supply and Eskom is extremely negative.

The desire for pre-payment meters is overwhelming. Not one person interviewed was happy with paying a flat rate tariff. An important reason why households selected the 20A supply was so that they could control their monthly expenditure on electricity. It was shown that, together with size of household income, other factors influenced whether households were able to pay the monthly flat rate.

The flat rate tariff is not appropriate because it is inflexible, requiring consistent payments at the same time each month. Such a tariff does not take account of the shifting circumstances and priorities in rural households, where the ability of households to absorb crises or unusual demands on their financial resources is limited.

A number of households opted for the 20A supply option so that they could use electricity for cooking. These households did not necessarily fall into a high income group. In fact, households reliant on one pension or less per month also prioritised expenditure on hotplates/stoves so that electricity could be used for cooking. Hotplates were prioritised above kettles and irons.

Some households in the sample were quite happy with the level of supply as it was not likely that they would ever prioritise expenditure on appliances. The provision of electricity for lights and media only was, therefore, entirely appropriate.

### Local revenue collection agent

The problems with the operational management of Tambo project had an impact on some households: they were disconnected when they had paid and did not receive immediate attention when technical problems arose. These problems resulted largely from the inefficiency and alleged corruption of the local revenue collector. However, other problems with the system also contributed towards poor customer service or presented opportunities for corruption of the local agent to occur. One of the main problems was that there were no mechanisms to keep the local revenue collector accountable. It is important that mechanisms are devised to ensure that the agent/s is/are made accountable to both Eskom and the community by, for example, the establishment of a steering committee.

The report also argued that there is the potential to reduce Eskom's role and increase the responsibility and function of a local agency. These functions could include some maintenance functions. In this way, the stress on the Eskom and Dongwe staff could be alleviated and the community would have better access to maintenance services. Also, the possibility of introducing a payment system with a local agency which is more flexible and takes account of local conditions should be explored. A local agency which takes responsibility for many of the operational functions associated with electrification projects may well reduce the costs of servicing Tambo village.

### The effect of electricity on energy use

The study found that electricity did not displace fuels for *any* of the electricity services. Energy expenditure has increased in every household since electrification. It was found that where fuels for lighting, or batteries for radios and televisions are not displaced by electricity, energy expenditure is significantly increased.

### Urgent action required

There is an extremely negative attitude towards Eskom at Tambo village, especially because of the flat rate tariff and the high connection fee for the 20A supply. It is evident that Eskom staff at both Queenstown and East London have put an enormous amount of energy into the project in an attempt to resolve some of the problems which have emerged. However, the problems associated with the flat rate tariff and the high 20A connection fee can only be resolved through higher level policy decisions. The lack of direction from Megawatt Park has resulted in problems remaining unresolved. It is not appropriate that people at Tambo should be made to suffer the consequences of this lack of direction.

### Recommendations

- A decision about the cost of the connection fee for a 20A supply must be taken immediately. The connection fee should be lowered to R45 or households should be given the opportunity to pay off the connection fee in instalments.
- The latter option will suit rural households as there is a tradition of buying goods on hire purchase and of extensive use of credit from grocery stores and spazas. However, it is important that the decision to charge R200 is accepted at a political level and negotiated with stakeholders such as local government in order to achieve the necessary acceptance.
- There are households which are likely to be dissatisfied with what a 2.5A supply of electricity can provide, especially because it does not allow for cooking. It is feasible that a current-limited supply, which makes allowance for limited thermal use, will be appropriate and accepted by rural people. An 8A supply, which can provide electricity for a one-plate hotplate is a possible strategy. However, including yet another electricity supply option will make implementation more complex. For this reason it may be more appropriate to develop a strategy which enables households which require electricity for thermal applications and cannot afford high connection fees to gain access to a 20A supply.
- The flat rate tariff militates against the sustained use of electricity. As pre-payment meters are accepted and desired by the people at Tambo it is worthwhile considering the provision of the 2.5A supply with pre-payment meters. However, as there are significant cost savings associated with not providing a pre-payment meter, the possibility of introducing a low tariff, such as R5 (which is equivalent to the smallest electricity card available), should be explored.
- This should be considered in conjunction with scrapping the reconnection fee as it was found that reconnection fees penalise the very poor.

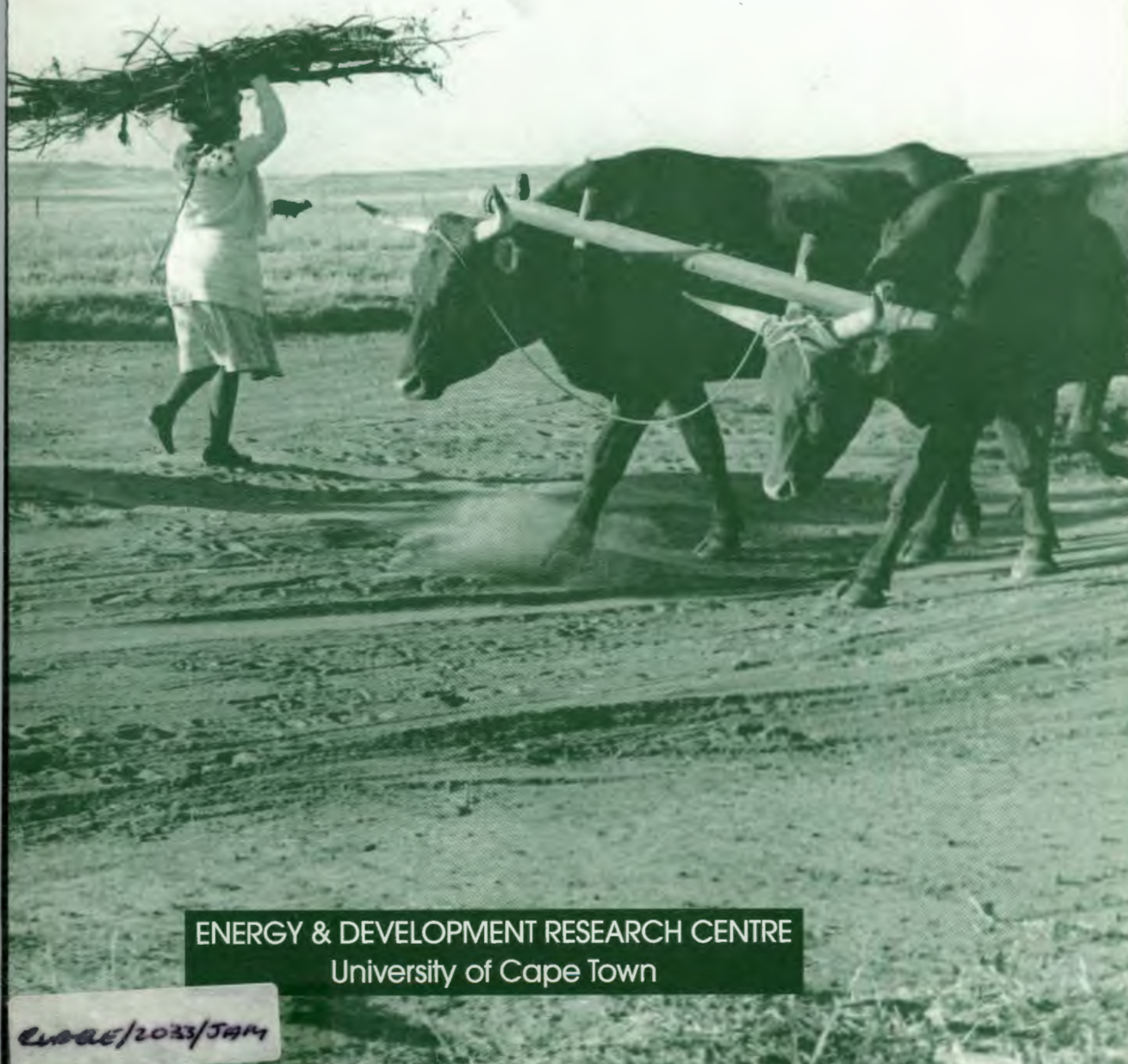
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# Rural households' response to the 2.5A electricity supply option in the Tambo Village project

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