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METAL STOVE PRODUCTION AND MARKETING STUDY  
for the  
APPROPRIATE TECHNOLOGY SECTION OF  
THE MINISTRY OF INTERIOR, CHIEFTAINSHIP  
AFFAIRS AND RURAL DEVELOPMENT  
on behalf of  
UNITED STATES AGENCY FOR INTERNATIONAL  
DEVELOPMENT

PEAT MARWICK MITCHELL & CO

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# ATS METAL STOVE PRODUCTION AND MARKETING STUDY

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## METAL STOVE PRODUCTION AND MARKETING STUDY

### 1. INTRODUCTION

#### 1.1 Reason and purpose of the study

The Appropriate Technology Section (ATS) of the Ministry of Interior, Chieftainship Affairs and Rural Development designed a metal stove in 1982 which was subsequently improved.

The improved metal stove was produced in limited quantities at ATS workshops during 1983-84, and contracts were also placed with three rural workshops with disappointing results.

It was not clear whether the problems encountered by Basotho workshops were due to lack of interest, due to no demonstrated local demand, lack of expertise, or both.

In order to develop a sound production and marketing strategy these factors have to be better understood.

Because of the problems with small scale producers ATS contracted with Lesotho Steel to produce 150 stoves. It was decided that these would be field tested and consumer reaction gauged. The first of these stoves was released on the Lesotho market in March 1986.

After one year it was decided that it was time to undertake a more thorough study of the current market to gauge:

- the success of the ATS metal stove program
- user perceptions
- future direction that should be taken in production
- future direction that should be taken in marketing

#### 1.2 Scope of work

The detailed scope of work is included as Appendix I. The work plan adequately summarises the work as:

- stove development review
- current stove market review
- history of small scale stove production
- history of large scale stove production
- analysis of ATS stove user data
- analysis of ATS stove marketing
- recommendation arising from the study.

Our report is organised under the above headings.

## METAL STOVE PRODUCTION AND MARKETING STUDY

### 1.3 Available literature

The following literature was made available to the consultants and was reviewed for the purposes of this study:

- Consultancy Report on Proposed Lesotho Energy Initiatives for Africa (EIA) by Geoff Burrell (1984)
- Lesotho Household Energy Survey by Judith Gay (1984)
- Laboratory Testing Report No.14 by Dough McLean and Gary Klein (February 28 1984)
- Production and Marketing Strategy for the ATS Metal Stove by Maxwell Kinyanjui (February 1985)
- Production and Marketing of the ATS Metal Stove by Maxwell Kinyanjui (August 1985)
- Draft Report on Stove Consultation in Lesotho 1982-83 by Margaret Thomas, Glenn Burket Consultants
- 1984 Annual Statistics Bulletin, by Bureau of Statistics
- Energy Demand in Lesotho by M Molapo and K Traub
- 1986 Population Census Preliminary Results (January 1987) by Bureau of Statistics.

## ATS METAL STOVE PRODUCTION AND MARKETING STUDY

### 2. EXECUTIVE SUMMARY

#### 2.1 Stove Development Review

The 'Mabotle' stove was designed in 1982 and subsequently modified and improved to the existing model (Section 3.2).

322 stoves have been produced so far, mainly by Lesotho Steel and ATS workshops in Maseru and Mokhotlong (Section 3.3).

#### 2.2 Current stove market review

Interviewed 6 wholesalers and 34 retailers from 10 districts (Section 4.1).

All stoves are imported from outside Lesotho except for 'Mabotle' stove (Section 4.2).

Manufacturers of the stove do not deliver the stoves directly to the customer (Section 4.3.1).

Only 4 retailers made deliveries to the customers and two of them charged for delivery service ranging from M15 to M20 in Maseru depending on the distance. (Section 4.3.2).

Only 6 retailers and wholesalers advertised on the radio but this had a very small effect on the sale of stoves (Section 4.3.3).

The marketing strategy most commonly used is price reduction of certain products at certain periods of the year which provides incentive to the customers (Section 4.3.4).

Consumers use contractors to install the stoves (Section 4.3.5).

None brands of coal stoves including 'Mabotle' are sold in Lesotho ranging between M140 to M1 500 depending on the size of the stove. 'Mabotle' was sold for M130. Electric stoves are not considered for the purpose of the study (Section 4.4).

No statistical data is available on sales of all types of metal stoves in Lesotho. The total sales of stoves by 40 wholesalers and retailers was estimated as 23049 of which 22088 related to paraffin stoves. Considering various factors the total sale of stoves in Lesotho is estimated to be 45950 units including 44000 paraffin stoves (section 4.5).

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### 2.2 Current stove market review (continued)

Installation and transportation cost to the consumer average to M15. The fuel cost per month is less for coal stoves compared to gas and paraffin. (Section 4.6).

Wholesalers based in urban area had lower profit margin than the retailers. Profit margins are different for different types of stoves. (Section 4.7).

Spares are not always available and no maintenance service is provided to the customers (Section 4.8)

All the other stoves use specific fuels and each stove has certain advantages and disadvantages (Section 4.9).

The market share of ATS metal stove to all stoves excluding paraffin stoves is 6,65% (Section 4.10).

### 2.3 History of small scale production

Problems like non availability of raw material, transportation and lack of experience created a lack of interest by small scale producers in the ATS project (Section 5.1).

Quality control and supervision from ATS staff was lacking (Section 5.1).

Probable cost to ATS in Maseru could be M160. (Section 5.2).

The small scale producers have different production capacities. The maximum being 200 stoves per year, (one producer with highest quotation)(Section 5.2).

There is potential for small scale production of metal stoves. (Section 5.3)

ATS should review, improve and fix the design of the stove to be produced (Section 5.4.1).

ATS should identify small scale producers and invite tenders for production batches listing capabilities of the producer (Section 5.4.2).

ATS should indicate willingness to provide training to producers (Section 5.4.3).

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### 2.4 History of large scale production

The only large scale producer has been Lesotho Steel (Section 6.1).

ATS did not perform quality control during production process. (Section 6.2).

Lesotho Steel is unable to produce the stoves in Maseru and presently is producing the stoves in Bloemfontein in the Republic of South Africa. (Section 6.2).

There is no difference in the cost structure for production between 50 and 200 stoves. The difference is negligible if the quantity is above 200. The maximum capacity of Lesotho Steel is about 1000 stoves in a year. (Section 6.3).

There is a negligible cost reduction in producing on a larger scale as compared to small scale (Section 6.4.1).

From experience it is easier for a large producer to maintain quality control. (Section 6.4.2).

Large scale production is not possible in Lesotho at this stage. (Section 6.4.3)

### 2.5 Analysis of ATS stove user data

932 households in 10 districts were interviewed. (Section 7.1)

Customers did not indicate any preference for the use of the stove. ATS stove is used for cooking, space heating and water heating. (Section 7.2).

The study indicated a low customer awareness of the stove. Only 17% of the sample was aware of the 'Mabotle' stove. (Section 7.3.1).

With the low consumer awareness of the existence of the stove the consumer replies could be on a theoretical basis. 67,2% of the sample indicated their interest in the stove because of the type of fuel that can be used. (Section 7.3.2).

ATS stove is not readily available. (Section 7.3.2).

Consumers had problems with installation, transportation and in two cases non-availability of wood and coal (7.4).

Air intake control and smoke escaping are two major technical problems experienced by the consumers. (Section 7.4)

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Consumers purchased alternative product because of non-availability of ATS metal stove. (Section 7.4).

Only 28% of the sample made suggestions. The main suggestions were:

- include an oven
- include a water tank
- increase number and size of fire plates, and
- improve the general appearance of the stove to be more appealing to the market. (Section 7.5).

### 2.6 Analysis of ATS stove marketing

Selection of outlets was based on geographical area considering the factors like availability of transport, storage capacity and sales terms. (Section 8.1).

The arrangements were made with individual Co-op store managers who allowed ATS to place the stove on their premises and passed on any cash from sales made to ATS. (Section 8.1).

Some retailers were not prepared to sell the stove to the consumer at the ATS predetermined price. (Section 8.1).

The cost of production to ATS per Lesotho Steel is M159 excluding cost of chimney and transportation. The cost based price at the retailer averages M184, and allowing for the retailer's margin the consumer price averages to M274, excluding cost of installation and transportation to the customer house. (Section 8.2).

The present selling price is 63% of the cost to ATS. (Section 8.2).

No incentives are offered to retailers. (Section 8.3).

Although the retailers expressed interest in selling the stove, they did not give any perceptions. It is not business-like for the retailers to store and sell stoves without any return. (Section 8.3).

No list of customers of 'Mabotile' stove was available, however the consumers interviewed included 9 'Mabotile' stove owners. (Section 8.4).

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The main reasons for buying the stove as indicated by the 9 'Mabottle' stove owners were price and type of fuel used. (Section 8.5).

Most of the owners of 'Mabottle' stove became aware of the stove by seeing it in Co-op stores. 25% had been to ATS demonstrations. (Section 8.5.1).

Five of the nine owners of 'Mabottle' stove installed the stove themselves. (Section 8.6).

The customers perceive mainly two advantages, viz type of fuel used and type of pots that can be used. (Section 8.7).

The stove does not have an attractive appearance, oven or water tank. (Section 8.7).

Retailers have not supplied ATS with information regarding the sales of ATS stove. (Section 8.8).

ATS follows up on field testing stoves. (Section 8.8).

### 2.7 Conclusions on ATS stove based on user trial data

The analysis indicates the following profile of a purchaser of the 'Mabottle' stove: (Section 9a)

- a) resides in rural area
- b) does not own a coal stove
- c) owns a paraffin stove
- d) uses Paola and traditional fire
- e) has access to traditional fuel

27% of the sample consider the present selling price of the stove to be cheap; 53% consider it reasonable and 20% consider the price to be expensive. (Section 9b (i)).

The majority of the 'Mabottle' stove owners use the stove everyday. (Section 9c).

Factors governing the use of ATs stove are:

- a) use of traditional fuel
- b) water heating
- c) cooking of all types of food
- d) in winters the main purpose is space heating (Section 9d).

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Changes suggested by customers will increase the cost of production and consequently the selling price. (Section 9e).

The potential market based on the study is 65820 stoves for the lifespan of the stove. (Section 9f and g).

The best market is in the rural areas of 5 districts, namely Mafeteng, Maseru, Thaba Tseka, Berea, and Quthing. (Section 9f and g)

The market share of ATS stove for next year is estimated to be in the region of 220-240 stoves in view of the history of stove sales. However, it is expected that the longer term market could be considerably improved. (Section 9f and g).

A realistic cost to ATS of the existing model of the stove including cost of chimney and transportation is estimated to be M185. (Section 9h).

The consumer price if ATS sells directly will be M207 which is comparable to coal stoves. The optimum selling price of the stove in its present design is estimated to be in the range M130-M180. (Section 9h).

### 2.8 Analysis of all stove user data

There are a large number of households who use Paola, traditional fire and paraffin stoves. (Section 10.1.4).

'Mabottle' is the only stove used by all the owners for cooking, space heating and water heating. (Section 10.1.4).

Problems encountered with other coal stoves were:

- a) installation
- b) transportation
- c) availability of fuel
- d) use of specific fuel
- e) smoke escaping
- f) controlling fire (Section 10.2).

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### 2.9 Recommendation for improved market intelligence by ATS

A pre-numbered guarantee card should be included in the booklet presented to each customer for completion. On receipt of the card ATS must update the official record. (Section 11a).

A standard customer service letter be sent by ATS after approximately three months of the sale. A questionnaire be sent annually and followed up according to the need for information. (Section 11b).

ATS should enquire from selected wholesalers and retailers as to their requirements for ATS stove. (Section 11f).

It is unlikely that Lesotho Steel would produce the stove for a profit of only M10 and we consider that their actual costs have been inflated. The simplest way is to obtain an engineering service from a known efficient factory in a neighbouring state in order to establish the standards. With this knowledge invitation to tender be issued to local producers. (Section 11b)

A cohesive marketing campaign should include:

- a) availability of stoves in retail outlets
- b) brochures attached to the stove
- c) competitive price
- d) radio advertisement
- e) posters at retail outlets (Section 11i)

Periodic sales campaign should include

- a) demonstrations in a store
- b) linked with sales incentives
- c) installation service (Section 11i)

Training of ATS technical staff is necessary to maintain quality control. (Section 11j)

Explain technical requirements to producers, determine maximum number of stove in a batch and inspect production at the factory. A clause for non payment in event of defective production be included in the order to the producer. (Section 11j).

## ATS METAL STOVE PRODUCTION AND MARKETING STUDY

### 2.10 Conclusion

Our overall conclusions are:

Large scale production is not possible in Lesotho at this stage.

There is a potential for small scale production but producers need to be identified and quality control maintained.

There is a potential market for the stove if it is reasonably priced and with greater emphasis on marketing, and availability of the stove.

Consumers were impressed with the multi function and multi fuel aspects of the stove.

We formed the opinion that the producers were making the stove more cheaply than they reported to us.

If the stove is sold in the existing design through retailers and wholesalers the price would appear comparable to alternatives.

The market for the stove is extremely price sensitive as 73% of the sample considered the present subsidised price of M130 to be either expensive or reasonable.

If improved design and normal sales outlets increase the cost of the stove it may need to continue to be subsidised to increase market share.

Great difficulty has been experienced in drawing positive conclusions because:

- only 139 'Mabotle' stoves had been sold
- of the 932 consumers interviewed only 9 were users of the 'Mabotle' stove.

## ATS METAL STOVE PRODUCTION AND MARKETING STUDY

### 2.11 Structure of the report

The report is basically structured in the sequence of the terms of reference.

Section 3 deals with the ATS metal stove's development.

Section 4 discusses the current market of all types of stoves.

Sections 5 and 6 cover the history of small and larger scale production of the ATS metal stove.

Section 7 and 8 discuss the method of selecting the consumer sample, and present and analyse results of the user data for ATS metal stove and ATS current marketing of the stove.

The conclusions of the consultant based on the user trial data are included in section 9.

An analysis of user data for all stoves is included in section 10.

The consultants recommendation for improved market intelligence by ATS based on the survey process and data analysis are included in section 11.

## METAL STOVE PRODUCTION AND MARKETING STUDY

### 3. STOVE DEVELOPMENT REVIEW

#### 3.1 Background

Lesotho has about 84% of its total population resident in rural areas. The rural households have a relatively low income and this implies that most people cannot afford to buy the large expensive coal stoves and secondly because coal used as fuel is relatively expensive and not easily available in most rural areas.

The rural households use a traditional three-legged pot which is very common in Southern Africa. This type of pot is commonly used with the traditional wood fire.

The rural households are also handicapped in transportation facilities because most rural households do not have access to public transport.

In view of the above situation ATS developed a Metal Stove named "Mabottle" in 1982. This stove uses various fuels; wood, cowdung, crop residues and; coal and is intended for both cooking and heating. This stove is comparatively smaller and cheaper than other coal stoves and is designed in such a way that the traditional three-legged pots can be used.

#### 3.2 Design of the ATS metal stove

The initial design of the stove model 1 gave certain problems to the customers and the design was improved to model 2. This design was also modified and presently the stoves are produced per the design shown in appendix 2 (model 3).

According to Mr Kinyanjui's February 1985 report, a kitchen performance test was done in nine households on the stove model 2 in Mokhotlong district and there were 3 major complaints about the stove.

- when using coal in the stove output dropped unacceptably
- the second pot on the stove was not coming to boil as desired by the users
- some smoke was backing into the room.

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In an attempt to eliminate the power output problem of the stove and smoke backing into the room; the following suggestions were made by Mr Kinyanjui in his report "Productions and Marketing Strategy for the ATS Metal Stove":-

- a) The fire grate be raised by 4cm bringing it closer to the pan bottom.
- b) The fire baffle be reduced by half its height
- c) The fire box be lined with ceramic slabs to conserve heat, incorporating a metal or ceramic fire grate.

Both recommendations (a) and (b) were implemented as suggested and the efficiency of the stove, after these modifications increased slightly and model 3 was introduced and made.

However, suggestion (c) that the ceramic liner be made out of clay and sand has not been implemented. A Lesotho producer was not found who could produce the stove with a ceramic liner. Such a liner would necessitate a larger stove.

### 3.3 Production of the ATS metal stove

Geoff Burrell's report (1984) indicates that the equipment to be used in the manufacture of the ATS metal stove is a minimum requirement of any metal or steel workshop.

Small scale producers were contracted in 1984/85 to produce these stoves. but in the opinion of ATS staff, the small scale producers failed to produce quality stoves due to their failure to achieve the precise measurements and a lack of interest in producing this stove.

In 1985 a contest was recommended for six producers where winners were to be rewarded with materials to meet certain production levels.

The prizes were suggested as follows:

- 1st prize materials for 18 stoves
- 2nd prize materials for 12 stoves
- 3rd prize materials for 10 stoves

It was also recommended that production of these stoves be produced in the private sector. However, this contest did not take place because the small scale producers did not produce the quality of stove required and were therefore disqualified. Now stoves are being produced by Lesotho Steel only.

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The following is the production history:

TABLE 1: HISTORY OF ATS METAL STOVE PRODUCTION

<u>Year ending March 31</u>	<u>No of stoves</u>	<u>Producer</u>
1983	6	ATS 'Malefiloane workshop Mokhotlong
1984	6	ATS Khubetsoana workshop
	12	ATS 'Malefiloane workshop
1985	6	ATS Khubetsoana workshop
	6	ATS 'Malefiloane workshop
	6	ATS Khubetsoana workshop
	--	
Total produced by ATS workshops	42	
	6	Thaba Khupa ITU
	6	Technical school of Leribe
	6	Mphutlane Steel work-Bedco
	6	Lerotholi Technical Institute
Total produced by Private workshops	--	
	24	
1986	150	Lesotho Steel
1987	106	
	---	256
		---
		322
		===

Out of the 150 stoves produced by Lesotho Steel 44 stoves were on hand in April 1987. Out of 66 stoves produced by ATS workshops and private producers 33 stoves were on hand in April 1987, 29 of which are used as field test stoves.

Since inception of the metal stove production, 139 stoves were sold but the financial information relating to the sale of these stoves is not available and we were told that all these stoves were sold at M130 each.

## METAL STOVE PRODUCTION AND MARKETING STUDY

### 4. CURRENT STOVE MARKET REVIEW

#### 4.1 Methodology

The scope of work states 'analyse current marketing of all metal stoves sold in Lesotho based upon Burrell/Technoserve February 1984 survey and other data available'

We reviewed the Burrell survey and found that the results:

- were no longer current
- did not provide the analysis required per the terms of reference

Accordingly, we selected 6 wholesalers and 34 retailers from the 10 districts of Lesotho (per Appendix 3) and conducted another survey with the following results:

The questionnaire used is attached as appendix 4.

#### 4.2 Sources of supply

All the retailers and wholesalers who sold coal, gas and paraffin stoves purchased their supplies from outside Lesotho.

No stove was produced within Lesotho except the "'Mabottle Stove", and clearly its local production will help to promote the local entrepreneur.

The imported stoves are sold at furniture shops, retail shops and wholesalers throughout Lesotho.

#### 4.3 Means of delivery and marketing

##### 4.3.1 Preamble

As mentioned all the stoves are imported into the country. The manufacturers do not deliver these stoves directly to the customer but sell them through the wholesalers and retailers.

Most of the stoves are advertised by the manufacturers in the Republic of South Africa. In addition, the local retailers and wholesalers use the following means for marketing:

- delivery service
- publicity on radio and advertisement in the media
- price reduction
- installation

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### 4.3.2 Delivery service

Out of forty retailers and wholesalers interviewed only four retailers make deliveries to their customers. Two out of these four retailers charge the customers for the delivery service whilst the other two make deliveries free of charge. The delivery charges range between M15 and M20 in Maseru depending on the distance.

It seems to us that a delivery service could play an important part in the marketing of these retailers since most customers do not have transport and they would prefer to pay more for the stove to be delivered to their home.

### 4.3.3 Publicity on radio and advertisements in the media

Based on the interviews conducted very few retailers advertise over the radio. Out of forty retailers and wholesalers only six had advertised the stoves over the radio. The wholesalers believe that advertising over the radio had a very small effect on the promotion of interest in those stoves. ATS advertised 'Mabottle stoves on "Litsoakotleng" magazine, posters, newspapers and flyers, but none of the other retailers used this method of advertising the stoves.

### 4.3.4 Price reduction

The marketing strategy most commonly used is the price reductions of certain products at certain periods of the year. Once a sale is advertised, indicating a reduction in price, many customers tend to buy. This appears to be an effective marketing strategy. All the retailers, except seven of the ATS sales outlets, have a sale once a year.

### 4.3.5 Installation

Some retailers also provide installation service. This service could also play an important marketing role since very few customers have knowledge of stove installations and at times they hire contractors to install their stoves.

One out of the forty retailers interviewed offered the installation service free of charge, but at the time of the interview there had been no noticeable impact on his sales.

## METAL STOVE PRODUCTION AND MARKETING STUDY

### 4.4 Price ranges

Based on the interviews conducted, the main types of stoves sold in Lesotho alongwith current price ranges are listed below:-

TABLE 2: PRICE RANGES OF STOVES SOLD IN LESOTHO 1986/7

i)	Paraffin stove - both pressure and wick flame	M6-M40
ii)	Gas stoves - bottled gas stove	M30-M90
	- medium gas stove with one or two rings	M60-M450
	- large gas stove with more than one ring and with an oven	M500-M850
iii)	Coal stoves - Queen stove	M140-M250
	- medium coal stoves, Jewel, Magic, Dover, Welcome, Univa, Sunglo, Defy	M300-M850
	- Large coal stoves Jewel, Magic, Univa, Sunglo, Defy	M500-M1 500

Electric stoves have not been considered for the purposes of this study.

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4.5 Estimates of quantities sold of each type of stove

The forty wholesalers and retailers interviewed indicated these estimated sales of stoves for 1986 which are summarised below together with the average price.

TABLE 3: SALES BY FORTY DISTRIBUTORS IN 1986

<u>Stove type</u>	<u>Quantity sold</u>	<u>Value</u>	<u>% of total value</u>	<u>Average price per stove</u>
<u>Paraffin stoves</u> (Both Pressure and wick flame)	22 088	M196 177	32,1	M9
<u>Gas stoves</u>				
Bottled gas stoves	127	M 7 245	1,2	M57
Medium gas stove with one or two rings	94	M 14 955	2,5	M159
Large gas stove with more than two rings and with an oven	53	M 14 176	2,3	M706
<u>Queen coal stoves</u>	175	M 29 707	4,9	M170
<u>Other coal stoves</u>				
Medium	140	M 68 658	11,2	M490
Large	372	M279 704	45,8	M752
	-----	-----	-----	
	23 049	M610 622	100,0	
	=====	=====	=====	

Note: Quantities sold exclude sale of 'Mabottle stove.

## METAL STOVE PRODUCTION AND MARKETING STUDY

The above figures may include an element of an overlapping sales of wholesalers and retailers but is considered negligible for the following reasons:

- some of the wholesalers have retail outlets
- sales of wholesalers were larger than the sales by retailers
- retailers also import directly from manufacturers

There is no statistical data available on sales of all types of metal stoves in Lesotho. The sample interviewed covered the majority of large wholesalers and retailers in the major towns of Lesotho and it seems likely that they will account for at least 50% of stove sales. It therefore seems that the maximum sales of all stoves can be estimated to be twice the above mentioned quantities. The other contributing factor to this assumption is the imports of stoves by individuals for which no information is available.

In view of the above the estimated quantities sold in 1986 are as under compared to the results estimated by Burrell's 1984 survey.

TABLE 4: ESTIMATED SALES OF STOVES IN LESOTHO IN 1986

	<u>Units</u>	<u>Burrell's 1984 survey</u>
Paraffin stoves of all types	44 000	36 400
Gas stove - Bottled gas stoves	250	9 000
- Medium gas stoves	200	1 820
- Large gas stoves	100	100
Queen coal stove	350	1 820
Other coal stoves - medium	300	1 095
- large	750	728
	-----	-----
Total	45 950	50 963
	=====	=====

The Burrell's figures were based on an estimated import value of M3,2m. Since the Burrell Survey in 1984 the increase in inflation would have affected the trends of the household's spending on capital goods.

PARAFFIN STOVE PRODUCTION AND MARKETING STUDY

4.6 Estimates of consumer costs

The estimates are based on average usage of fuel and average transportation and installation costs.

TABLE 5: ESTIMATES OF CONSUMER COSTS OF STOVES

	<u>Paraffin stove</u>	<u>Queen coal stove</u>	<u>Medium and large coal stove</u>	<u>Gas stove</u>
Transportation costs	-	M10,00	M30,00	M10,00
Installation fees	-	M 5,00	M 5,00	-
Fuel costs	M0,60 per litre	M8 per 70kg	M8 per 70kg	M1,31 per kg
Usage	1 litre/day	70kg/mth	70kg/mth	10kg/mth

The fuel costs on a monthly basis are estimated as shown below:

	<u>Cost per unit</u>	<u>Usage</u>	<u>Cost per month</u>
Paraffin stove	M0,60/litre	1 litre/day	M18,00
Queen coal stove	M8,00/70kg	70kg/ 1 mth	8,00
Coal stove	M8,00/70kg	70kg/ 1 mth	8,00
Gas stove	M1,31/kg	10kg/mth	13,10

These figures were supplied by the retailers and will obviously be liable to fluctuation based on the extent of cooking and heating. In addition paraffin stoves involve the operating cost of replacing wicks.

## METAL STOVE PRODUCTION AND MARKETING STUDY

### 4.7 Estimate of wholesaler and retailer margins

Based on the interviews conducted with the retailers and wholesalers margins depend on the type of stove and the type of retailer. However, the average margins are shown below:

TABLE 6: PROFIT MARGINS OF WHOLESALERS AND RETAILERS

<u>Stove type</u>	<u>Profit margins</u>
Primus stove	15% to 25%
Queen coal stove	10% to 25%
Coal stoves (Medium and large)	10% to 40%
Gas stoves	10% to 25%

It was noted that the wholesalers based in the urban areas had lower profit margins than the retailers.

### 4.8 Source of spares and maintenance

Since the stoves are manufactured outside Lesotho their spares are also supplied from outside Lesotho. However, some retailers and wholesalers keep certain spares which are sold to customers. However, even in these cases spares were not always available on demand and at these times special orders had to be made.

No retailer provided a maintenance service to the customers. All customers maintain their own stoves and if necessary pay for maintenance service.

## METAL STOVE PRODUCTION AND MARKETING STUDY

### 4.9 Advantages and disadvantages of each type of stove

Based on the information obtained from the producers, retailers and consumers the following have been identified as advantages and disadvantages of the different types of stove.

TABLE 7: LIST OF ADVANTAGES AND DISADVANTAGES OF EACH TYPE OF STOVE

#### STOVE TYPE

##### Paraffin stoves

#### ADVANTAGES

(Both pressure stoves and wick flame stoves)

1. Small (therefore easy to transport)
2. Water heating and cooking facilities
3. Parts easily available
4. Easy to operate and maintain
5. Purchase price cheaper than other stoves
6. Wick stoves easily lit
7. Cooks fast
8. Portable and handy
9. Heat can be regulated

#### DISADVANTAGES

1. Paraffin is expensive
2. Paraffin not easily available in rural areas
3. No oven therefore has limited use
4. Useful life comparatively short (say 3 years)
5. No allowance for traditional three legged pots
6. Cannot accommodate heavy pots
7. Only one or two pots can be used at any one time
8. Parts need replacement
9. Too noisy
10. It leaks
11. Wick finishes fast
12. Pump not working

## METAL STOVE PRODUCTION AND MARKETING STUDY

### STOVE TYPE

#### Gas stoves

(Single and multiple rings,  
with and without oven)

#### ADVANTAGES

1. Small stoves are easy to transport
2. Used for heating and cooking
3. Easy to operate, maintain and install
4. Cheaper compared with coal stoves of similar size
5. Longer lifespan as compared to paraffin stoves
6. Some stoves have ovens and therefore baking facilities
7. No smoke problems
8. Parts easily available in towns
9. Amount of heat can be regulated
10. Can be easily lit

#### DISADVANTAGES

1. Gas not easily available in rural areas
2. Gas is more expensive than coal
3. No allowance for traditional three legged pots
4. Some stoves do not have an oven and therefore their use is limited
5. Some stoves are so small that they cannot accommodate heavy pots
6. The only fuel that can be used is gas
7. Possibility of gas leakage

## METAL STOVE PRODUCTION AND MARKETING STUDY

### STOVE TYPE

#### Green coal stoves

### ADVANTAGES

1. Small and easy to transport
2. Easy to install
3. Parts easily available
4. Relatively cheap compared with other coal stoves
5. Longer lifespan compared to paraffin stoves
6. Used for heating and cooking
7. Relatively attractive compared to the ATS stove

### DISADVANTAGES

1. Coal not easily available in rural areas
2. Coal is expensive compared with traditional fuels
3. No allowance for the traditional fuels
4. Two fireplates and therefore only two pots at a time can be used
5. Only uses coal effectively as there is less heat when using the traditional fuels
6. No oven and therefore baking is not possible
7. Purchase price relatively expensive
8. Takes longer to start the stove
9. Not easy to regulate the heat
10. Smoke problems in windy condition
11. Uses too much fuel
12. Chimney wears out fast
13. Parts not easy to replace.

## METAL STOVE PRODUCTION AND MARKETING STUDY

### STOVE TYPE

#### LARGE COAL STOVES

These include "Dover",  
"Jewel" "Sunglo", "defy"  
(large coal stoves)

#### ADVANTAGES

1. Oven available therefore baking facilities are available
  2. Appears attractive
  3. They have longer useful life, ten years or more
  4. Can accommodate heavy pots
  5. It takes a longer time to cool off once it is used
  6. Some parts easily available
- More than two plates

#### DISADVANTAGES

1. Heavy and needs transport facility
2. Not easy to install compared to gas stove
3. Purchase price relatively expensive
4. No allowance for three legged pots
5. Coal not easily available in rural areas
6. Coal is expensive in the rural areas compared to traditional fuels
7. Not easy to regulate the heat
8. Most of these stove have smoke problems especially in windy conditions
9. Uses too much fuel
10. Chimney wears out fast
11. Parts not easy to replace

## METAL STOVE PRODUCTION AND MARKETING STUDY

### 4.10 Market share of ATS metal stove

The ATS metal stove has been sold at M130. Comparing this price with the price ranges of other stoves (refer 4.4) the market share of ATS metal stove can be considered in the following price ranges:

Medium gas stove - M60 to M450  
Queen coal stove - M140 to M250  
Medium coal stove - M300 to M850

The market share of ATS metal stove as percentage of other stove is calculated below:

TABLE 8:                    MARKET SHARE OF ATS METAL STOVE

	<u>Percentage of market sales</u>
Percentage of ATS metal stove to total sale of metal stoves	0,30
Percentage of ATS metal stove to sales of all stove excluding paraffin stoves	6,65
Percentage of ATS metal stove to sale of medium gas stove	41,00
Percentage of ATS metal stove to sale of Queen coal stove	28,43
Percentage of ATS metal stove to sale of medium coal stove	31,66

## METAL STOVE PRODUCTION AND MARKETING STUDY

### 5. HISTORY OF SMALL SCALE PRODUCTION

For the purpose of this study we interviewed the following small scale producers of the ATS metal stove.

1. Khubetsoana ATS Workshop
2. 'Malefiloane ATS Workshop
3. Thaba Khupa ITU
4. Technical School of Leribe
5. Mphutlane Steel Works
6. Lerotholi Technical Institute

The questionnaire used for interviewing the producers is attached as appendix 5.

#### 5.1 Major bottlenecks, quality problems and delays affecting small scale production

Based on the interview conducted with the above producers, we established that the major bottlenecks etc, affecting production were:

- the required raw materials were not available on order and delays in supply occurred;
- problems in obtaining transport to collect the materials
- the cost of manufacture exceeded the price quoted to ATS, due mainly to transport costs.

Due to lack of experience in stove production most producers were not precise in measurements since some workshops used students to produce the stoves and the students did not have experience.

Quality control and supervision from ATS staff was lacking since quality of the stoves was rectified after the stoves were produced and already delivered to ATS. Based on interviews conducted, and the number of rejections it seems that there was no effective quality control in the production process.

Some of the above factors combined to create a lack of interest by small scale producers in the ATS production project. Basically they envisaged problems and negligible profits.

5.2 Small scale producers: Cost structure of production

A number of producers did not have financial records relating to the production of the stoves they had previously produced but quotations at current cost in June 1987 for the stove without the chimney were given by those producers and they ranged from M130,00 to M220,00 per stove. The summary of estimated cost structures is included in Table 10.

The cheapest quote of M130 was by Mphutlane Steel Works (BEDCO) but in the opinion of ATS staff this stove was the lowest quality. The next cheapest was M140 by the ATS Workshop in 'Malefiloane (near Mokhotlong). However ATS has decided not to continue to manufacture but to provide training to small scale producers.

The next cheapest were the two technical institutes at Leribe and Maseru, with prices of M148 and M192 respectively. The Maseru Institute explained that sometimes a student would start a stove in one term and another student would complete it in the following term which increased labour costs. This Institute, and

the Lerotholi Technical Institute, also recommended that ATS should supply the materials and they would provide the labour.

The most expensive quotation was supplied by Thaba Khupa ITU at M220. They explained that their labour was expensive and also included a profit of 15% of selling price.

A critical factor in the costing is the transport of raw materials: Mphutlane (BEDCO) using hired transport incur a cost of only M9, whereas the Maseru producers incurred a cost exceeding M33. Mphutlane purchased their steel from Lesotho Steel, Maseru; whereas the others purchased from Bloemfontein using their own transport.

In view of the above comments it seems that the probable cost structure in Maseru could be:

TABLE 9: PROBABLE COST STRUCTURE OF A SMALL SCALE PRODUCER

	<u>M</u>	<u>%</u>
Raw material and transport in	90	57
Labour	30	19
Other expenses	10	6
	---	--
Cost of production	130	82
Delivery to ATS Maseru	5	3
	---	--
	135	85
Profit of small producer, 15% of their selling price	25	15
Cost to ATS (Small producers selling price)	---	---
	160	100
	===	===

METAL STOVE PRODUCTION AND MARKETING STUDY

TABLE 10: QUOTATIONS FOR PRODUCING ATS METAL STOVES AT JUNE 1987 PRICES (WITHOUT CHIMNEY)

	<u>Mphutlane Steel Works</u>	<u>ATS 'Malefeloane Workshop</u>	<u>Technical School of Leribe</u>	<u>Lerotholi Technical Institute</u>	<u>Thaba Khupa ITU</u>
Maximum capacity per year	100 ===	- =	10 ==	5 =	200 ===
Number of stoves	6 =	6 =	6 =	6 =	6 =
<u>Cost per stove</u>	<u>M</u>	<u>M</u>	<u>M</u>	<u>M</u>	<u>M</u>
Raw materials	80,74	100,00	58,33	62,00	76,00
Transportation of raw materials	9,00	15,00	37,50	33,75	37,50
Labour cost	22,50	15,00	24,50	36,00	45,00
Other expenses	7,50	5,00	8,00	15,00	15,00
Cost of production	119,74	135,00	128,33	145,00	173,50
Delivery costs of completed stoves	3,00	5,00	12,50	11,25	12,50
Profit margin	122,74 8,00	140,00 -	140,83 7,50	155,50 36,50	186,00 34,00
Cost of ATS (per stove)	130,74 =====	140,00 =====	148,33 =====	192,00 =====	220,00 =====

Note: ATS place orders without chimneys and add the chimney before selling the stove. The cost of the chimney is M15.

## METAL STOVE PRODUCTION AND MARKETING STUDY

### 5.3 Potential for small scale production of metal stoves

Our interviews indicated that there is potential for small scale production of metal stoves.

In order to realise that potential, there needs to be improvement in the stove, identification of the most suitable small scale producers, closest to the market to be served, training and guidance of those producers by ATS, and the motivation of the producers by indicating an opportunity to earn profits.

Our recommendations are included in the following paragraph.

### 5.4 Recommendations to ATS in order to stimulate production

#### 5.4.1 The stove

One producer recommended that the stove be made out of a heavier sheet of steel in order to retain heat and to accommodate coal usage. Another recommended that ceramic clay blocks be introduced to accommodate coal usage and also to retain heat. Yet another recommended that the general appearance of the stove be improved to attract customers.

A number of consumers complained about the inadequate air intake of the stove, and this should be improved.

ATS should review, improve and fix the design of the stove to be produced.

#### 5.4.2 Identification of small scale producers

Because of the heavy cost of transport, stoves should be inspected at the producers' premises before acceptance by ATS. Upon acceptance stoves should be delivered if possible directly to the sales outlet and where this is not possible to the most appropriate ATS store or workshop. Producers therefore need to be identified to serve the main markets.

In order to assess the interest of manufacturers who had not yet produced the stove we located and contacted two such companies in Maseru. Both expressed interest in producing the stove.

## METAL STOVE PRODUCTION AND MARKETING STUDY

ATS should prepare a check list of what they require before awarding contracts to manufacturers.

ATS should also create a list of suitable producers.

ATS should invite tenders for production batches listing materials and equipment necessary and the capabilities of the producer. An ideal batch size of over 20 stoves be agreed with the producer.

### 5.4.3 Training and motivation of manufacturers

ATS must indicate that they provide training to manufacturers who are enthusiastic about being a successful producer of ATS metal stoves. ATS must indicate that being a recognised producer of the stove provides a good opportunity to earn profits.

### 5.4.4 Financial support

ATS must indicate the extent to which they will be prepared to provide financial support to an enthusiastic manufacturer.

## METAL STOVE PRODUCTION AND MARKETING STUDY

### 6. HISTORY OF LARGE SCALE PRODUCTION

#### 6.1 Production and deliveries

The only large scale producer has been Lesotho Steel.

During 1986 they produced and delivered 150 stoves to ATS.  
For 1987 they have been given a contract to produce 200 stoves.

On May 13 1987 they delivered 70 stoves, of which 15 (21%) were rejected by ATS. These rejected stoves were rectified and have now been accepted.

On May 22 1987 they delivered 36 stoves, of which 1 (3%) was rejected and subsequently rectified and accepted. During the remainder of 1987 Lesotho Steel must complete the balance of the contract of 94 stoves.

Of the 256 stoves received from Lesotho Steel, 106 are still held by ATS Maseru; 44 are held by retailers awaiting sale; and the balance of 106 stoves have been sold.

#### 6.2 Problems encountered

Lesotho Steel explained that ATS staff did not perform quality control during the production process but required errors to be rectified after the stoves had been produced and delivered to ATS. This situation resulted in high costs because at times the stoves had to be destroyed and started again which meant extra labour, transport and material cost.

Secondly Lesotho Steel had problems with local staff and equipment neither of which was suitable to produce the stoves in large quantities and now production of these stoves is carried out in Bloemfontein, in the Republic of South Africa.

## METAL STOVE PRODUCTION AND MARKETING STUDY

### 6.3 Cost of production

Based on the interview conducted with Mr du Plessis of Lesotho Steel the cost of production is constant per stove, whether a small or large quantity is produced.

When producing between 50 and 200 stoves the production cost is as follows per stove:

TABLE 11: COST STRUCTURE OF LESOTHO STEEL FOR PRODUCING ATS METAL STOVE

	<u>M</u>	<u>%</u>
Materials	58,33	37
Transport and railage	12,50	6
Labour	40,00	25
Other expenses	38,00	24
	-----	--
	148,83	94
Profit margin	10,17	6
Cost to ATS and producer's selling price	----- 159,00	---- 100
	=====	===

These stoves are sold at M130,00 per stove including chimneys. We were also told by ATS staff that the 106 stoves received in May 1987 from Lesotho Steel are still held at the Khubetsoana Workshop still to be priced and delivered to customers. An ATS technical officer said that the period which has elapsed for pricing those stoves is unsatisfactorily longer than expected as winter will be nearly over before the stoves can be delivered to customers.

As indicated by Mr du Piessis, if production is over 200 stoves then the cost to ATS may be slightly lower than M159,00 but the difference is relatively small and the maximum capacity of Lesotho Steel in Bloemfontein is about 1000 stoves in a year.

## METAL STOVE PRODUCTION AND MARKETING STUDY

### 6.4 Determinations regarding large scale production

#### 6.4.1 Is production on a large scale more economically viable

Small scale and large scale production was not defined to the consultants. In fact the small scale producers interviewed worked in batches of six stoves, whereas the large producer worked in batches of over 30. Some of the small scale producers indicated they would prefer to work in larger batches, of about 50. We recommend that the ideal batch size is agreed between ATS and the small producers.

The large scale producer indicated there was a negligible cost differential between 50 and 200 stoves.

Production of less than 20 stoves does not instill any motivation in the producer as he will not make much money on the contract.

Both small and large producers could work on an economically viable batch of over 20 stoves, and there is a negligible cost reduction in producing on a larger scale. Therefore we consider that at the present time large scale production is not more economically viable.

#### 6.4.2 Is quality control easier to maintain with large producer

From the interview it seems that the large producer abdicated responsibility for quality control.

As stated in paragraph 5.1 the small producers also had no effective quality control. From our experience it is easier for a large producer to maintain effective quality control.

In our view adequate quality control is possible on batches of over 20 by both large and small producers, but the responsibility for the control must be clearly placed.

## METAL STOVE PRODUCTION AND MARKETING STUDY

### 6.4.3 Is large scale production possible in Lesotho?

Lesotho Steel have indicated that they could produce a maximum of 1000 stoves per annum but they also stated that their local labour was not sufficiently experienced and that their plant was inadequate, and that the production would be carried out in Bloemfontein.

The consultants contacted all the steel companies listed in the Lesotho telephone directory and did not identify any other large scale steel producer.

At this stage it therefore seems that large scale production in Lesotho is not possible.

## METAL STOVE PRODUCTION AND MARKETING STUDY

### 7. ANALYSIS OF ATS STOVE USER DATA

#### 7.1 User sample

The selection of customers to be interviewed was based on the 1986 population census and other reports which were read for the purpose of this study.

TABLE 12: NUMBER OF HOUSEHOLDS DISTRICTWISE

<u>District</u>	<u>Population</u>	<u>Household Size</u>	<u>Number of households</u>		
			<u>Total</u>	<u>Urban</u>	<u>Rural</u>
Butha-Buthe	100 644	4,9	20 687	2 037	18 650
Leribe	257 988	4,9	52 713	6 089	46 624
Berea	194 631	4,7	41 115	8 288	32 827
Maseru	311 159	4,4	70 444	26 563	43 881
Mafeteng	195 591	5,0	39 444	2 883	36 561
Mohale's Hoek	164 392	4,8	34 221	2 075	32 146
Quthing	110 376	5,1	21 487	1 103	20 384
Qacha's Nek	63 984	4,8	12 048	1 388	10 910
Mokhotlong	74 676	4,8	15 533	825	14 708
Thaba Tseka	104 095	4,8	21 835	940	20 895
	----- 1 577 536 =====		----- 329 527 =====	----- 51 941 =====	----- 277 586 =====

Source: 1986 population census preliminary results: By Bureau of  
Statistics: January 1987.

We further noted that the rural area is divided into lowlands, foothills and mountains and the demand of the stove is different in these areas. Based on Lesotho Household Energy Survey - 1984 by Judith S Gay, the percentage of people wanting to own ATS metal stove based on 256 interviews conducted was

- Lowlands 71%
- Foothills 60%

From the report by Judith Gay no survey was done on mountain areas and we estimated the demand of the stove to be slightly above the lowlands demand. This was estimated at 75% and for the urban areas it was estimated at 2%. Since the urban areas have access to coal, paraffin and electricity and as the standard of living is relatively high they can afford to buy more expensive stoves.

METAL STOVE PRODUCTION AND MARKETING STUDY

Therefore the following percentages were used to determine the sample of customers to be interviewed.

Rural - Mountains	75%
- Foothills	60%
- Lowlands	71%
Urban areas	2%

Based on the above percentages for the ATS metal stove demand we have the following possible users on area basis:

	<u>Number of stoves</u>
Rural areas - Mountains	67011
- Foothills	41058
- Lowlands	85254
Urban areas	1040
	-----
	194363
	=====

The details of the possible users on district and area basis are shown in Table 13.

METAL STOVE PRODUCTION AND MARKETING STUDY

TABLE 13: POSSIBLE USERS OF ATS METAL STOVE ON AREA BASIS

District	Rural: Households										%
	<u>Mountains</u>		<u>Foothills</u>		<u>Lowlands</u>		<u>Urban</u>		<u>Total</u>		
	<u>Households</u>	<u>Possible users</u>									
Butha-Buthe	1 046	785	9 747	5 848	7 857	5 578	2 037	40	20 687	12 251	6,3
Leribe	4 195	3 146	14 843	8 905	27 586	19 778	6 089	122	52 713	31 952	16,4
Berea	-	-	10 445	6 267	22 382	15 891	8 288	166	41 115	22 324	11,5
eru	6 867	5 150	14 193	8 515	22 821	16 203	26 563	531	70 444	30 399	15,5
Mafeteng	-	-	13 875	8 325	22 686	16 107	2 883	58	39 444	24 490	12,6
ale's Hoek	10 343	7 757	5 328	3 197	16 475	1 697	2 075	42	34 221	22 693	11,7
Quthing	20 384	15 268	-	-	-	-	1 103	22	21 487	15 310	7,9
Qacha's Nek	10 910	8 183	-	-	-	-	1 138	23	12 048	8 206	4,2
Mokhotlong	14 708	11 031	-	-	-	-	825	17	15 533	11 046	5,7
Thaba Tseka	20 895	15 671	-	-	-	-	940	19	21 835	15 690	8,1
	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
	89 348	67 011	68 431	41 058	119 807	85 254	51 941	1 040	329 527	194 363	100,0
	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====

## METAL STOVE PRODUCTION AND MARKETING STUDY

We planned to interview 1000 customers for the purpose of this study. The 1000 customers are distributed as per the above percentage ratio. However, only 932 customers were interviewed due to time constraint and snow problems at Semonkong and Ha Sekake which places were not visited because they were inaccessible.

TABLE 14: USER SAMPLE INTERVIEWED

	<u>Number interviewed</u>	
	<u>Planned</u>	<u>Actual</u>
Butha-Buthe	63	63
Leribe	164	164
Berea	115	115
Maseru	156	119
Mafeteng	126	126
Mohale's Hoek	117	117
Quthing	79	48
Qacha's Nek	42	42
Mokhotlong	57	57
Thaba Tseka	81	81
	----	---
	1000	932
	====	===

This number of interviews is considered reasonable and representative of the stove market.

The areas covered where interviews were conducted are shown in Appendix 6.

Details of the numbers of interviews in each village in the districts are included in Appendix 7.

The questionnaire used for this purpose is attached as Appendix 8.

### 7.2 Consumer preference for ATS metal stove

Of the 932 consumers interviewed, only 9 (1%) owned the 'Mabotle ATS metal stove.

Each of them used it for cooking, water heating and space heating and indicated no preference.

The stoves tend to be used in winter when space heating is required as an automatic by product of cooking and water heating.

METAL STOVE PRODUCTION AND MARKET STUDY

**7.3 Consumers awareness of ATS metal stove**

**7.3.1 General awareness**

The consumers who are aware of the 'Mabotle have become aware of it through different ways as analysed below:

TABLE 15: CONSUMERS AWARENESS OF ATS METAL STOVE

	<u>Saw at someone's house</u>	<u>Radio advertisements</u>	<u>Newspapers and magazines</u>	<u>Saw at retail shop</u>	<u>Saw at demonstration</u>	<u>Total</u>	<u>Not aware</u>	<u>Total sample</u>
Butha-Buthe	-	2	4	-	-	6	57	63
Leribe	1	14	12	2	-	29	135	164
Berea	2	15	4	2	-	23	92	115
As-sru	3	10	2	1	2	18	101	119
Mafeteng	2	3	1	1	-	7	119	126
Sohale's Hoek	-	3	2	-	6	11	106	117
Buthing	-	2	4	-	1	7	41	48
Sacha's Nek	10	1	-	12	-	23	19	42
Mothotlong	4	4	-	1	3	12	45	57
Thaba Tseka	3	4	1	15	-	23	58	81
	--	--	--	--	--	---	---	---
	25	58	30	34	12	159	773	932
	==	==	==	==	==	===	===	===
Percentage aware of of 932 consumers	2,7	6,2	3,2	3,6	1,3	17,1		

Out of 932 consumers interviewed only 159 consumers (17%) are aware of the 'Mabotle stove. Only 71 customers have actually seen the stove whereas 88 customers only heard or read about the stove.

## METAL STOVE PRODUCTION AND MARKETING STUDY

This result would imply that marketing still has to be improved so that quite a substantial share of the market have heard or seen the product.

In order to target this marketing effort the distribution of consumers who are not aware of the 'Mabotile stove is set out below:

Over 80%	-	Butha Buthe
	-	Leribe
	-	Maseru
	-	Mafeteng
	-	Mohale's Hoek
	-	Quthing
70-80%	-	Berea
	-	Mokhotlong
	-	Thaba Tseka
Below 50%	-	Qacha's Nek

Most consumers who are aware of the ATS stove are not aware that these stoves do not use coal only but also use the easily available traditional fuels such as wood, cow dung, crop residues etc. This fact shows that the dissemination unit should still hold demonstrations, advertise over the radio and any other form of advertising which would make the customers aware of the strengths of the ATS metal stove.

### 7.3.2 Consumer awareness of stoves strengths and weaknesses

#### Strengths

824 consumers indicated that they like the ATS metal stove because of the following strengths or advantages of the stove:

- fuel used
- the stove can use the traditional three legged pots
- the heat that the stove produces
- the very short time the stove takes to heat up the house
- the short time it takes for heating up water and cooking.

METAL STOVE PRODUCTION AND MARKETING STUDY

The results of the customers who were interviewed and indicated their particular interest in the ATS metal stove is shown below:

TABLE 16: CONSUMER AWARENESS OF STRENGTHS OF ATS METAL STOVE

<u>District</u>	<u>Fuel used</u>	<u>Type of pots used</u>	<u>Heat</u>	<u>No of interviews</u>
Butha-Buthe	34	8	-	63
Leribe	125	31	--	164
Berea	102	36	6	115
Maseru	41	4	4	119
Mafeteng	65	10	3	126
Mohale's Hoek	72	15	5	117
Quthing	41	4	4	48
Qacha's Nek	27	9	1	42
Mokhotlong	48	27	5	57
Thaba Tseka	71	17	9	81
	---	---	--	---
	626	161	37	932
	===	===	==	===
% distribution	67,2%	17,3%	4,0%	100,0%
	====	====	===	=====

This table shows that the fuel used by this type of stove is a most important determining factor for the demand of the stove.

Weaknesses

The main weakness encountered was the lack of availability of the stove. Since the inception of this project there have been sales of 139 stoves in five years. When the stove users were interviewed they were asked whether the stove is readily available. The results showed that only 22 customers (2,4%) said that the stove is readily available.

METAL STOVE PRODUCTION AND MARKETING STUDY

The interviews showed the following results:

TABLE 17: CONSUMERS VIEWS ON AVAILABILITY OF ATS METAL STOVE

<u>District</u>	<u>No of interviews</u>	<u>ATS METAL STOVE</u>		
		<u>Readily available</u>	<u>Not available</u>	<u>Do not know</u>
Butha-Buthe	63	-	55	8
Leribe	164	-	131	33
Berea	115	2	105	8
Maseru	119	2	104	13
Mafeteng	126	2	118	6
Mohale's Hoek	117	3	87	27
Quthing	48	1	32	15
Qacha's Nek	42	6	21	15
Mokhotlong	57	1	37	19
Thaba Tseka	81	6	73	2
	---	--	---	---
	932	23	763	146
	===	==	===	===
%	100,0%	2,4%	81,9%	15,7%
	=====	===	====	=====

Clearly many people who were not aware of the ATS stove assumed it was not readily available.

Based on the perception of 82% of consumers that the stove is not readily available and the fact that only 139 stoves have been sold since the inception of the project in 1982 one can conclude that the ATS stove is not readily available.

## METAL STOVE PRODUCTION AND MARKETING STUDY

### 7.4 Problems encountered with the ATS stove

The following are the major problems with the ATS stove.

#### Installation

Four customers who are now using the 'Mabotie stove had problems with installing the stoves because they did not know how to install them. Two consumers employed contractors who were paid for the installation.

#### Transport

Most people are resident in the rural areas where there is a problem of transport. Four customers out of nine customers interviewed who own the ATS metal stove indicated that they had problems with transporting the stoves from the retailers to their places since the retailers did not have a transport facility.

#### Availability of fuel

The two customers interviewed in Qahca's Nek indicated that they had problems with fuel being available. Wood and coal was not readily available and therefore the stove was not used as desired.

#### Technical problems

The technical problems which were encountered with the ATS metal stove were the air control and smoke.

Some customers had to draw the ash catcher and leave it open for some time so that the stove had enough air intake.

The other technical problem identified was smoke escaping into the house especially in windy weather. This problem is normally encountered by most coal stove users and the smoke leakage is solved by cleaning the chimney.

#### The non-availability of the ATS metal stove

A few of the 932 consumers indicated, when interviewed, that at the time they wanted to buy a stove the ATS stove was not available and they therefore purchased an alternative product.

## METAL STOVE PRODUCTION AND MARKETING STUDY

### 7.5 Consumer suggestions for stove improvement

There were a number of suggestions made by consumers for improvement in the stove.

The suggestions made were as follows:

#### Optional improvements

- introduce an oven to the stove to allow baking facilities
- make a canopy on top of the stove which would allow accommodation of pots when not being used.
- make a water tank so that water can boil along with either space heating or cooking
- the size and the number of fireplates be increased so that the stove can accommodate more pots (say 4 or 5 pots) at the same time
- introduce clay blocks so that heat can be conserved for a longer time and the stove cannot lose heat quickly

#### Necessary improvements

- it was also suggested that the general appearance of the stove be improved to attract customers and become more appealing to the market.
- the air control be modified so that the maximum heat level is maintained.

METAL STOVE PRODUCTION AND MARKETING STUDY

The results of the above suggestions on district basis are shown below:

TABLE 18: CONSUMER SUGGESTIONS FOR STOVE IMPROVEMENT

<u>District</u>	<u>No. of interviews</u>	<u>Modify air control</u>	<u>Make oven</u>	<u>Make canopy</u>	<u>Make water tank</u>	<u>Increase size and no of fireplates</u>	<u>Modify general appearance</u>	<u>Introduce clay blocks</u>
Buta Buthe	63	-	5	-	4	2	2	1
Leribe	164	-	3	-	-	1	-	-
Berea	115	-	11	1	2	3	4	1
Maseru	119	-	6	2	5	25	-	-
Mafeteng	126	-	4	3	6	10	6	1
Mohale's Hoek	117	-	5	2	7	7	12	2
uthing	48	-	3	1	12	10	6	-
Macha's Nek	42	1	20	4	9	11	12	2
Mokhotlong	57	1	10	1	2	5	3	-
Maba Tseka	81	-	9	7	-	1	1	-
---	---	---	---	---	---	---	---	---
	932	2	76	21	47	75	46	7
	===	=	==	==	==	==	==	=
	100,0%	0,2%	8,1%	2,1%	5,0%	8,0%	4,9%	0,8%
	=====	===	===	===	===	===	===	===

The two customers who said the air control should be improved were actual users of the stove and represented 25% of users interviewed. Accordingly, this appears to be a fault which requires rectification.

Based on the above results, it appears that most consumers suggestions are for an oven and increasing the size and number of fireplates of the Mabotle stove. These suggestions were made because of the fact that the other coal stoves have ovens and are comparatively larger in size.

## METAL STOVE PRODUCTION AND MARKETING STUDY

### 8. ANALYSIS OF CURRENT ATS MARKETING OF ATS METAL STOVE

The marketing of the ATS is done by the dissemination unit of ATS which normally holds demonstrations. As indicated in section 4.3 the unit has held demonstrations, advertised over the radio, used pamphlets and displayed in different places to attract the customers.

#### 8.1 Selection of outlets

The outlets which sold the ATS metal stove are as listed below:

Phela U Phelise Hololo Valley, Butha Buthe  
Pitseng Spar, Leribe  
Mokomahatsi Co-op Store, Berea  
Mapoteng Co-op Store, Berea  
Khubetsoana ATS Workshop, Maseru  
Makoe Qeme Store, Maseru  
Qalabane Mission, Mafeteng  
Ha Tlali Cash Store,  
Ha Monethi  
Mount Mgorosi, Quthing  
Qacha's Nek White Hill Co-op Store  
Qacha's Nek Co-op Store, Qacha's Nek  
Morojele Store, Mokhotlong  
Mantsonyane Co-op Store, Thaba Tseka

Eight of these outlets were interviewed and they had a view that most of their customers are not aware of the 'Mabottle stove.

## METAL STOVE PRODUCTION AND MARKETING STUDY

The rationale behind the selection was to gauge where the market would be and then select an outlet after consideration of the following factors:

### - Geographical area

The selection of these outlets was based on geographical area. Most of the outlets were Co-op Lesotho Stores which sell agricultural implements. The stoves are now being sold at places where no other stoves are sold except the 'Mabotile stove.

### - Availability of transport

The other factor which affected the selection of the outlets was access to transport. Since the objective was to maximise the number of outlets it was decided to concentrate on Co-op store outlets; the reason was that ATS believed that most rural customers would have more access to Co-op stores which tend to be in the rural areas and closer to the customers. The arrangements were with individual Co-op store managers who allowed ATS to place the stoves in their premises and passed any cash from sales made to ATS.

### - Sales terms

Some retailers wanted to buy the stoves and sell them at their own prices which would obviously be higher than a predetermined price. ATS had problems with these type of retailers since the stoves were intended to be sold at a price which was predetermined. There being problems with these retailers then the selection of outlets was now limited to the retailers who agreed to sell at a fixed price. As told by ATS staff some retailers wanted to be paid storage costs which also affected the selection of the outlets.

### - Availability of storage capacity

The ATS also indicated that some retailers did not have space to store these stoves. Therefore, there were problems with the selling of these stoves at these retail outlet areas due to non availability of storage space.

METAL STOVE PRODUCTION AND MARKETING STUDY

8.2 Cost/price structure of stove

Currently the stoves are only produced by Lesotho Steel.

The cost structure of Lesotho Steel is as follows:

TABLE 19: COST STRUCTURE OF ATS METAL STOVE

	<u>M</u>	<u>%</u>
Raw materials	58,33	37
Transport and railage	12,50	8
Labour	40,00	25
Other expenses	38,00	24
	-----	--
	148,83	94
Profit margin	10,17	6
Cost of ATS (Producers' selling price)	-----	---
	159,00	100
	=====	===

The chimney purchased by ATS costs 15,00

Transport costs from the ATS to all the different outlets depended on the distance travelled and the type of transport used. Since ATS uses Government vehicles for transport the transport costs is based on petrol consumed. The transport costs in the absence of ATS estimates of petrol costs are estimated on a distance basis as shown below:

TABLE 20: COST OF TRANSPORTING ATS METAL STOVE

<u>Place</u>	<u>Distance from Maseru and back (Km)</u>	<u>Cost per Kilometre</u>	<u>Total cost per trip</u>
			<u>M</u>
Butha-Buthe	260	M0,35	91,00
Leribe	185	M0,35	64,75
Berea	90	M0,35	31,50
Maseru	10	M0,35	3,50
Mafeteng	155	M0,35	54,25
Mohale's Hoek	290	M0,35	101,50
Quthing	396	M0,35	138,60
Qacha's Nek	500	M0,35	175,00
Mokhotlong	480	M0,35	168,00
Thaba Tseka	350	M0,35	122,50
			-----
Total			950,60
			=====

METAL STOVE PRODUCTION AND MARKETING STUDY

ATS stated that deliveries were made in batches of between 10 and 20 stoves but normally around 10 stoves at a time.

The cost based on price delivered to the retailer can therefore be summarised as:

TABLE 21: PRICE STRUCTURE OF ATS METAL STOVE

	<u>Mokhotlong</u>	<u>Qacha's Nek</u>	<u>Leribe</u>	<u>Maseru</u>	<u>National average</u>
	<u>M</u>	<u>M</u>	<u>M</u>	<u>M</u>	<u>M</u>
Production	159	159	159	159	159
Chimney cost	15	15	15	15	15
Transportation cost	17	17	6	4	10
	---	---	---	---	---
	191	191	180	178	184
	---	---	---	---	---

A reasonable margin for the retailer is considered to be 25%.

The price to the consumer would therefore be:

Sales price	255	255	240	237	245
GST 12%	31	31	29	28	29
	---	---	---	---	---
Consumer price	286	286	269	265	274
	---	---	---	---	---

In the event that ATS sold directly to the consumer at M130 per stove including GST, that is M116 before GST as compared to the average cost of M184, the selling price will be about 63% of the cost.

In addition the cost to the customer would include the cost of transportation to his house and any cost of installation. Based on the survey of all stove users (paragraph 4.6) these costs average M15 per stove.

## METAL STOVE PRODUCTION AND MARKETING STUDY

### 8.3 Current incentive structure and perceptions of retailers

There were no incentives offered to the retailers.

It was stated by ATS staff that when demonstrations are held retailers are told that the ATS metal stove is demanded by the public because of its advantages (eg multifuel, cheap, can use the traditional pots) and therefore any retailer who is interested in selling the stove must sell the stove on a consignment basis and pass the full sale proceeds to ATS. This is a material disincentive as retailers holding consignment stocks are normally given a commission on sale.

As the retailers are not selling the stove they did not give us any perceptions relating to it, although they expressed interest in selling the stove.

Of the nine users of the ATS metal stove only one stated that he paid more than M130 for the stove; he paid M150. The perception of the consultant was that it seemed unusual and unbusiness like for retailers to store and sell the stove without any return.

### 8.4 List of customers and locations

The list of customers who purchased 139 stoves since the inception of this project was not available. However, some customers who used the stoves were interviewed in different locations. and their names are listed below:

<u>District</u>	<u>Village</u>	<u>Name of customer</u>
Mokhotlong	Salang Village	Mr M Makhele
Qacha's Nek	Ha 'Mamosa	Mrs 'Malimakatso Thibathere
Qacha's Nek	Ha 'Mamosa	Mr S Sentja
Thaba Tseka	Ha 'Nyane	Mr Taola Tau
Thaba Tseka	Ha 'Nyane	Mr M Masupha
Thaba Tseka	Ha Leronti	Mr Antony Khanyapa
Thaba Tseka	Ha Leronti	Mrs 'Mateboho Mahlomola
Maseru	Mazenod	Mr Lepipi Ramokotjo
Maseru	Mazenod	Mrs 'Mathabang Nkoe

## METAL STOVE PRODUCTION AND MARKETING STUDY

### 8.5 Reasons for buying the ATS metal stove

Customers purchased these stoves for the reasons set out in the table below:

TABLE 22: REASONS FOR BUYING ATS METAL STOVE

	<u>No. owning 'Mabotle stove</u>	<u>Fuel used</u>	<u>Speed of heating</u>	<u>Price</u>	<u>Easily transportable</u>
Maseru	2	2	1	2	1
Qacha's Nek	2	2	1	2	1
Mokhotlong	1	1	1	1	1
Thaba Tseka	4	4	1	4	3
-	-	-	-	-	-
9	9	9	4	9	6
=	=	=	=	=	=

All nine customers bought the ATS metal stove because the fuel used such as wood, crop residues, cow dung is easily available and cheap.

All nine customers also bought the 'Mabotle stove because of its price which appeared relatively cheap as compared with other coal stoves.

Another factor which contributed to the purchase of 'Mabotle stove is the heat that is derived from the stove. Four customers out of nine interviewed indicated that they had seen the stove being used at someone's place and they were impressed by the heat derived from these stoves.

Transport also plays a role in that large coal stoves could not be transported easily to the customer's place.

## METAL STOVE PRODUCTION AND MARKETING STUDY

### 8.5.1 Marketing of the ATS metal stove

It was recommended by the consultant in his February 1985 report that information on the stoves should be distributed in the form of pamphlets, flyers or posters and in radio announcements. This was done as suggested; posters were issued by ATS to retailers in the rural areas; when a stove was sold a manual was handed to the customer and announcements over the radio were made in 1984 and 1985 during a weekly programme which lasted 15 minutes. In the opinion of the ATS staff most buyers knew of the stove through the radio announcements.

It was further recommended that active stove demonstrations be held at public market, at retail outlets or at sites close by the manufacturers. It was also recommended that the producers should attend these demonstrations.

The ATS dissemination unit has held the demonstrations since 1984. The stove has been demonstrated at the following places:

Maryland Village Leribe  
Mohale's Hoek  
Quthing  
Qacha's Nek  
Marakabei, Mantsonyane  
Mokhotlong  
Matela Farmer's Training Centre, Maseru.

The dissemination unit officer said that after every demonstration held, the customers placed orders and at times even the demonstration stove was sold. However, the producers did not attend these demonstrations.

The stoves which were used for field testing were given out freely to the villages and regular visits were made to the field testing homes.

The nine customers interviewed became aware of the ATS stove as follows:

- five customers saw the stove at the Co-op store outlets
- two customers became aware of the stove through the demonstration held by ATS
- one customer saw the stove being used at someone's house
- one customer read about the stove in a magazine

## METAL STOVE PRODUCTION AND MARKETING STUDY

### 8.6 How customers have installed the stoves

The installation of the stove relates mainly to the fixing of the chimney and preparing the outlet through the roof or wall. Five customers who purchased the 'Mabotle stove installed the stoves by themselves. Two customers had their stoves installed by ATS staff and two people employed contractors who were paid for the service.

### 8.7 How consumers perceive advantages and disadvantages of 'Mabotle stove

Most of the 932 consumers (67,2%)(paragraph 7.3.2) who were interviewed like the stove because it uses traditional fuels. Another advantage of the stove which is not sufficiently known by the customers is the fact that the traditional pots can be used which most rural households use. Only 7.3% like the stove because of the pots used.

Some customers have indicated that they like the stove because it takes a shorter time to heat up the house and cooking is faster.

The customers have also perceived the following disadvantages of the stove:

- the stove does not have attractive appearance as compared to other stoves
- the stove does not have an oven or a water tank.

However, it should be noted that most customers, based on interviews, like the stove and therefore the advantages outweigh the disadvantages.

### 8.8 Current ATS monitors, follow up and support service

The ATS make follow-ups on sales made and the ATS staff tries to get feedback from the retailers on the views of customers but very few responses were received. Retailers have not supplied ATS with information regarding the sales of the ATS stove.

The ATS also makes follow ups on field testing stoves where the responses from the stove users are obtained and analysed thereafter.

The ATS monitors quality by performing quality control inspections after the stoves have been delivered to them. Any errors identified are corrected before the stoves are distributed to the outlets.

## METAL STOVE PRODUCTION AND MARKETING STUDY

### 9. CONCLUSIONS ON ATS STOVE BASED ON USER TRIAL DATA

Some additional conclusions obtained from the study are summarised below for clarity.

#### a) Who purchases the stoves

The results of the interview with the nine customers who own 'Mabotle stove are analysed below"

	<u>No of customers</u>	<u>% of total interviewed</u>
Resident in the rural areas	7	78
Customers using		
- Coal stove	-	-
- Paola	6	67
- Paraffin	9	100
- Traditional fire	9	100
Price of the stove is		
- reasonable	8	89
- cheap	1	11
Availability of traditional fuels	8	89
Have access to ATS retail outlets	9	100

The above analysis indicates the following profile of a purchaser of a 'Mabotle ATS stove:

- Resides in rural area
- Does not own a coal stove (for the reason that either coal is not easily available or is expensive or the coal stove appears expensive).
- Owns a paraffin stove
- Uses paola and traditional fire
- Probably cannot afford an expensive stove
- Has access to traditional fuel
- Is near to ATS retail outlets

The consultants consider that this profile will be valid for future marketing of the stove. In addition the consultants feel that in view of the multi function and multi fuel aspects of the stove, there is a possibility of a market amongst existing coal/gas stove owners depending on the consumer awareness and availability of the stove.

METAL STOVE PRODUCTION AND MARKETING STUDY

b) How customers view the ATS stove

i) Price of the ATS stove

The survey showed the following distribution regarding the price of the stove.

TABLE 23: CONSUMERS VIEW ON THE PRICE OF THE ATS METAL STOVE

<u>District</u>	<u>Cheap</u>	<u>Reasonable</u>	<u>Expensive</u>	<u>Total number of interviews</u>
Butha Buthe	32	23	8	63
Leribe	63	66	35	164
Berea	20	68	27	115
Maseru	24	70	25	119
Mafeteng	43	59	24	126
Mohale's Hoek	35	60	22	117
Quthing	3	42	3	48
Qacha's Nek	6	26	10	42
Mokhotlong	4	39	14	57
Thaba Tseka	15	43	23	81
	---	---	---	---
	245	496	191	932
	===	===	===	===
	26,3%	53,2%	20,5%	100,0%
	====	====	====	====

80% of the sample considered the price of stove to be either cheap or reasonable. However, only 159 of customers interviewed were aware of this stove so this implies that most of the consumers who indicated their views in terms of price were not aware of the existence of this type of stove.

ii) Availability of the ATS stove

The other view about the stove is its availability. The details included in section 7.3.2 of this report, indicate that over 80% of people consider that the stove is not readily available.

iii) Strengths and weaknesses of the 'Mabotle stove

Strengths and weaknesses are shown in section 7.3.2 of this report.

## METAL STOVE PRODUCTION AND MARKETING STUDY

### c) How consumers use the stove

Referring to the summary in 9.1.4 it is clear that the stove is used for cooking, water heating and space heating. All the nine 'Mabotle stove users interviewed used mainly the traditional fuels for starting the stove. Coal is also used when available. Seven of the nine customers using the stove reported that they used the stove everyday, whereas the other two used it only once or twice a week.

### d) What factors govern use of stove

As indicated by the study all the 'Mabotle stove users use the stove for cooking, space heating and water heating. The factors governing the use are as under:

- the stove uses the traditional fuel which is easily available especially in rural areas;
- during the winters the main purpose of the stove to the consumer is space heating;
- water heating;
- can accommodate a traditional three legged pot and consumer does not have to buy new pots
- cooking of all types of food.

The 'Mabotle stove was designed to have a lower fuel consumption. However, the consumers did not specify whether there was any savings on fuel consumption.

### e) Changes in the stove design

The customers interviewed made certain suggestions for stove improvement (section 7.5.). Most of the people interviewed did not make any suggestions as they were not aware of the stove. The main concerns of the people making suggestions were:

- provision for oven
- improvement in appearance to make it more attractive
- water tank, and
- increase in number and size of fire places.

The consultants feel that any of the above changes to the stove will contribute to the increase in cost of production; the extent of which cannot be quantified at this stage. However, the general appearance of the stove requires improvement to attract more customers and become comparable to other stoves in the market.

The above aspects should be discussed with the producers and the designers as they involve technical knowhow.

METAL STOVE PRODUCTION AND MARKETING STUDY

f & g) Probable and best market

Considering the profile of a purchaser as summarised in 10(a), the potential market can be determined from the following table.

TABLE 24: PROBABLE AND BEST MARKET

<u>District</u>	<u>No of rural household*</u>	<u>Number interviewed</u>	<u>Customers who like the stove</u>	<u>Customers owning coal/gas stove out of 'c'</u>	<u>Customers consider expensive out of 'c'</u>	<u>Balance of customers who liked stove</u>		<u>Potential market</u>
						<u>No:</u>	<u>%</u>	
	<u>-A-</u>	<u>-B-</u>	<u>-C-</u>					
Buthe Buthe	18650	63	35	24	8	3	4	746
Uribie	46624	164	92	44	35	13	7	3263
Berea	32827	115	85	26	27	32	27	8863
Maseru	43883	119	100	45	25	30	25	10970
Mafeteng	36561	126	94	8	24	62	49	17914
Monale's Hoek	32146	117	63	36	22	5	4	1285
Quthing	20384	48	36	12	3	21	43	8765
Thaba's Nek	10910	42	28	24	-	4	9	982
Matlotlony	14708	57	32	21	-	11	19	2794
Thaba Tseka	20895	81	77	14	23	40	49	10238
	-----	---	---	---	---	---	---	-----
	277588	932	642	254	167	221	24	65820
	=====	===	===	===	===	===	==	=====

\*Based on preliminary results of 1986 census.

The potential market figures should be used to identify the probable best sales areas rather than to indicate actual sales numbers.

From the above table the best market is in the rural areas of the following districts:

- Berea
- Maseru
- Mafeteng
- Quthing and
- Thaba Tseka

The 221 people who can be listed from the questionnaires represent definite sales prospects.

With sales of coal and gas stove of 1950 in 1986 and estimating an increase of 10% over 1986 figures the total estimated sales would be in the region of 2200 to 24000. Considering the market share of ATS metal stove per section 4.10 of 6,6% and assuming improvements in production and marketing will be brought about by ATS, the maximum market share of ATS metal stove for the next year can be estimated to be in the region of 10%, that is between 220 and 240 stoves.

However, bearing in mind, the non availability and the lack of awareness of the stove it is expected that the longer term market could be considerably improved.

## METAL STOVE PRODUCTION AND MARKETING STUDY

### h) Realistic price/cost structure

The consultants have considered four options of marketing the stove, which are:

ATS sells

- to wholesalers who in turn sells to a retailer from whom the consumer purchases the stoves.
- to the wholesaler who sells to the consumer
- to the retailer who sells to the consumer
- directly sells to the consumer.

In all the options above, the cost of producing a stove to ATS remains the same, but the price to the consumer at the collection point differs because of the margin of profits of wholesalers and retailers and consequently differences in sales tax.

As indicated in section 5.2 the probable price/cost structure for the present is shown in Table 25.

METAL STOVE PRODUCTION AND MARKETING STUDY

TABLE 25: REALISTIC PRICE/COST STRUCTURE

	<u>Via wholesaler and retailer</u>	<u>Just wholesaler</u>	<u>Just retailer</u>	<u>Direct by ATS</u>
	<u>M</u>	<u>M</u>	<u>M</u>	<u>M</u>
Raw materials and transport in	90			
Labour	30			
Other expenses	10			
	---			
Cost of production	130			
Delivery to ATS Maseru	5			
	---			
	135			
Profit margin of the producer	25			
	---			
Production cost to ATS	160			
Cost of chimney	15			
Average transportation to outlets	10			
	---			
	185	185	185	185
Wholesalers margin of profit 20% of their cost price	37	37	-	-
	---	---	---	---
Wholesalers price	222	222	185	185
Retailers margin of profit 25% of their selling price	74	-	62	-
	---	---	---	---
Retailers price	296	222	247	185
	===	===	===	===
Cost to consumer at collection point	296	222	247	185
GST 12%	36	27	30	22
	---	---	---	---
Price to consumer at collection point	332	249	277	207
	===	===	===	===

## METAL STOVE PRODUCTION AND MARKETING STUDY

### h) Realistic price/cost structure (continued)

The prices calculated above, based on the present design, are comparable to the prices of similar coal and gas stoves. However, these prices are substantially in excess of the current M130 selling price and it is probable that the proposed price would lead to an adverse percentage swing in the consumer response to the price as detailed in section 10 (b). In order to make the stove competitive at the proposed prices, the design modifications recommended by the consumers (eg improved appearance, incorporation of oven) would have to be implemented which would increase production cost and consequently the selling price based on commercial rates.

However, considering the response by 21% of the sample interviewed who considered the present selling price of M130 to be expensive and another 53% who considered it to be reasonable, the price structure appears to be high from the customers view

In view of the above it seems that the market will not accept a significant increase in the price. In order to create a reasonable market share for the stove, whether in its existing design or in an upgraded design, ATS must therefore:

- reduce manufacturing cost
- decide extent to which they will provide a subsidy depending on whether ATS is willing to subsidise the consumer price or the producer price or both.

This would lead to the following realistic selling prices:

Existing design	M130-M180
Upgraded design	M200-M240

### i) Best means of marketing

Only 17% of consumers interviewed were aware of the stove. Most of them (36%) became aware of the ATS metal stove through radio advertisements (see section 7.3.1).

Clearly insufficient people are aware of the stove and marketing must be improved. Our suggestions are included in the section 11.

## METAL STOVE PRODUCTION AND MARKETING STUDY

### j) Best means to maintain quality control

No suggestions came out of the study. It was apparent that there was inadequate quality control during production. Our suggestions for improvement are included in section 11.

### K) Summary of marketing recommendations

In summary we consider that marketing of the stove should cover:

- select the most appropriate market segment, according to customer profile and geographical area;
- contact the 221 people who liked the stove
- improve the availability of the stove
- improve the awareness of the stove, and emphasise the advantages:
  - multi uses
  - multi fuels
  - fuel savings
  - use of existing pots
- carry out the necessary improvements to the stove:
  - general appearance
  - air intake control
- try and reduce manufacturing cost and improve quality control
- decide the distribution system and price to the consumer
- decide the extent and beneficiaries of subsidies.

METAL STOVE PRODUCTION AND MARKETING STUDY

10. ANALYSIS OF ALL STOVE USER DATA

10.1 Consumer preferences all stoves

From the interviews conducted, it is evident that consumers may own more than one type of stove and each stove may be used for cooking, water heating and space heating at different times. There is a possibility that a consumer may own a coal or gas stove for social prestigious reasons. However, the use of each type of stove for cooking, water heating and space heating is analysed below.

10.1.1 Cooking

TABLE 26: EQUIPMENT USED FOR COOKING BY CONSUMERS

The equipment used for cooking purposes is shown below:

District	No. of interviews	No. of stoves	Coal stoves	Queen stoves	Gas stoves	Paola	Traditional fire	Paraffin stove	'Mabotle stove
Gutha Buthe	63	105	21	-	3	12	26	43	-
Leribe	164	297	38	1	5	62	108	113	-
Berea	115	217	21	1	4	25	99	67	-
Maseru	119	195	37	3	3	14	67	69	-
Mafeteng	126	123	5	-	4	26	35	53	-
Mohale's Hoek	117	211	33	-	3	27	35	113	-
Quthing	48	84	8	2	2	5	27	40	-
Qacha's Nek	42	83	17	2	3	14	12	33	2
Mokhotlong	57	134	9	3	8	37	28	48	1
Thaba Tseka	81	189	5	2	2	43	80	53	4
	---	----	---	--	--	----	---	---	-
	932	1638	194	14	37	265	517	632	9
	===	====	===	==	==	===	===	===	=
	100%	176%	19%	2%	4%	28%	55%	67%	1%

Note: The consumer analysis is more than 100% as consumers use more than one method of cooking.

METAL STOVE PRODUCTION AND MARKETING STUDY

10.1.2 Water heating

TABLE 27: EQUIPMENT USED FOR WATER HEATING BY CONSUMERS

Below is the distribution of equipment used for water heating.

<u>District</u>	<u>No. of interviews</u>	<u>No. of stoves</u>	<u>Coal stoves</u>	<u>Queen stoves</u>	<u>Gas stoves</u>	<u>Paola</u>	<u>Traditional fire</u>	<u>Primus stove</u>	<u>'Mabotle stove</u>
Butha Buthe	63	101	20	-	2	10	24	45	-
Leribe	164	313	38	1	5	96	60	113	-
Berea	115	211	21	1	4	24	93	68	-
Maseru	119	195	37	3	3	14	67	69	2
Rafeteng	126	114	5	-	4	27	33	45	-
Monale's Hoek	117	159	16	-	2	19	35	87	-
Guthing	48	82	8	2	2	4	26	40	-
Qacha's Nek	42	80	16	2	3	11	12	34	2
Pokhotlong	57	133	9	3	8	37	28	47	1
Thaba Tseka	81	187	6	2	2	42	80	51	4
	---	----	---	--	--	---	---	---	-
	932	1575	176	14	35	284	458	599	9
	===	====	---	==	==	===	===	===	=
	100%	169%	19%	2%	4%	30%	49%	54%	1%

Note: The consumer analysis is more than 100% as consumers use more than one method of water heating.

METAL STOVE PRODUCTION AND MARKETING STUDY

10.1.3 Space heating

Lastly the table below shows the equipment used for space heating.

TABLE 28: EQUIPMENT USED FOR SPACE HEATING BY CONSUMERS

<u>District</u>	<u>No. of interviews</u>	<u>No. of stoves</u>	<u>Coal stoves</u>	<u>Queen stoves</u>	<u>Gas heater</u>	<u>Paola</u>	<u>Traditional fire</u>	<u>Paraffin heater</u>	<u>'Mabotle stove</u>
utha Buthe	63	64	20	-	1	11	25	7	-
eribe	164	220	38	1	-	94	58	29	-
ereea	115	168	21	1	4	25	95	22	-
aseru	119	193	37	3	1	14	67	69	2
afeteng	126	108	4	-	-	39	44	21	-
ohale's Hoek	117	103	18	-	1	20	30	39	-
uthing	48	51	8	3	-	5	27	8	-
acha's Nek	42	52	12	2	-	10	12	14	2
okhotlong	57	91	9	3	2	37	28	11	1
haba Tseka	81	148	6	2	1	42	80	13	4
	---	----	---	--	--	---	---	---	-
	932	1203	173	15	10	297	466	233	9
	===	====	===	==	==	===	===	===	=
	100%	129%	18%	2%	1%	32%	50%	25%	1%

Note: The consumer analysis is more than 100% as consumer use more than one method of space heating.

The use of each type of stove at a particular time may depend on the availability or cost of the fuel concerned. For example in rural areas consumers do not only use paraffin stove for cooking but also use the traditional fire when paraffin is not available or they cannot afford it.

METAL STOVE PRODUCTION AND MARKETING STUDY

10.1.4 Summary

The results of the above preference is summarised below:

TABLE 29: CONSUMER PREFERENCE BY STOVE TYPE

Stove	Number of stoves owned by the consumers	User preference					
		Cooking		Water heating		Space heating	
		Used	%	Used	%	Used	%
Coal stoves	194	194	100	176	91	173	89
Queen stoves	15	14	93	14	93	15	100
Gas stoves	37	37	100	35	95	10	27
Paola	297	265	89	284	96	297	100
Traditional fire	517	517	100	458	89	466	90
Paraffin stove	632	632	100	599	95	233	37
'Mabotle stove	9	9	100	9	100	9	100
	1701	1668		1575		1203	

From the above summary it can be seen that only the 'Mabotle stove is used by all the owners for all the purposes.

## METAL STOVE PRODUCTION AND MARKETING STUDY

### 10.2 Problems encountered with stoves

The following are the problems which are encountered by the stove users:

#### Installation problems

Most customers do not have proper knowledge of how to install the stoves. At times contractors were employed to install since most retailers do not carry out any installations. Due to lack of experience in the installation of stoves with chimneys some users have problems with roof leaking where the chimney is fitted or smoke problems.

#### Transport problems

Most people reside in the rural areas where there is a problem of transport. Some customers did not buy the large coal stoves simply because of non-availability of transport. Some customers chose the Queen stoves simply because they could transport it easily as compared to the large coal stoves.

#### Non availability of fuel

Coal stoves use coal only as a fuel. In most rural areas coal is not always available and therefore the stove cannot be used at all times.

On the other hand coal may be available but is so expensive that the consumers decide not to use the stove.

The use of specific fuels appears to be a weakness of the other stoves, because if the specific fuel is not available then the stove can not be used.

#### Technical problems

There are some technical problems with both coal and paraffin stoves. With paraffin stoves there appears to be a problem of wicks wearing out quickly.

The coal stoves have problems of smoke escaping into the room due to the chimney not being clean and problems with heating of plates due to lack of air intake. Some stoves have a problem with air control which when blocked results in the smoke escaping or the stove not heating up.

These coal stoves use clay blocks in the fire place to conserve heat. These clay blocks wear out more quickly than expected by the stove users.

METAL STOVE PRODUCTION AND MARKETING STUDY

The specific problems relating to each type of stove have been discussed under section 4.9.

The results of the technical problems encountered by the stove users on regional basis are analysed below:

TABLE 30 PROBLEMS ENCOUNTERED BY CONSUMERS WITH COAL STOVES

<u>District</u>	<u>Number owning coal stoves (including Queen stove)</u>	<u>Controlling fire</u>	<u>Adding fuel</u>	<u>Smoke escaping</u>	<u>Air control</u>	<u>Heating fire place</u>
Butha Buthe	21	-	-	2	2	-
Leribe	39	4	-	10	-	4
Berea	21	10	4	3	-	-
Maseru	40	2	-	12	1	8
Mafeteng	21	12	3	13	-	6
Mohale's Hoek	33	-	3	11	-	4
Quthing	10	3	2	5	1	2
Qacha's Nek	19	-	-	7	1	-
Mokhotlong	11	-	-	4	-	-
Thaba Tseka	7	-	1	1	-	2
	---	--	--	--	-	--
	222	31	13	68	5	26
	===	==	==	==	=	==
%	100,0%	14,0%	5,8%	30,6%	2,2%	11,7%
	=====	====	===	====	===	=====

This table suggests that the most common technical problem is the smoke problem. This is sometimes caused by windy weather conditions.

## METAL STOVE PRODUCTION AND MARKETING STUDY

### 11. RECOMMENDATIONS FOR IMPROVED MARKET INTELLIGENCE BY ATS

#### a) Who purchases the stoves

To determine who purchases the stove, when the stove is sold by a retailer a full address should be noted down on the invoice.

The retailer should be asked to compile a monthly list of sales showing customer's name and address for submission to the Principal Technical Officer of the ATS. This may not be fully effective and when ATS staff visit the retailer they can list the new customer addresses and submit the list to the Principal Technical Officer.

Some retailers may not be able to or may not wish to carry out this system so in addition we suggest that a pre-numbered guarantee card should be included in the booklet which is presented to each customer for completion by the customer. (The nature and extent of the guarantee must be agreed with ATS - but it should be sufficient to provide an incentive for the customer to complete and return it). The customer should complete card with his name and address etc and post it to the Principal Technical Officer for entry on the official customer guarantee record.

#### b) How customers view the stove

Approximately three months after the sale a standard customer service letter should be sent to the customer with the following content:

- trust that the stove is fulfilling your requirement;
- if the stove has developed any faults please advise us and one of our technical staff will call on you when next in your area;
- if there should be any ways in which the stove is not fully meeting your expectation we should be pleased to hear about it.

The letter should be written in English or Sesotho according to customer preference.

Letters do not usually meet with a good response and the ATS staff should follow up on every sale made about four months after the sale to complete a checklist seeking the customers view of the stove and any suggestions.

The questionnaire should be sent to customers annually and followed up according to the need for information.

## METAL STOVE PRODUCTION AND MARKETING STUDY

c) How customers use the stove

As indicated in (b) above there should be follow-ups on every sale made and the customers should always be requested to fill in questionnaires indicating how the stoves are used. The follow-ups should be made by the ATS staff.

Follow-ups are being done presently by the ATS staff, but they are handicapped by the lack of customer information.

d) Factors governing the use of the stove

Questions regarding fuel availability, need for space heating, slow cooking etc should be incorporated in the customers questionnaires and followed up.

e) What changes could be made in the stove design to improve marketability

Relevant questions should be included in the customers questionnaire. In addition small scale producers should be encouraged to make a contribution to design improvement particularly with regard to value engineering, that is producing the stove at a lower cost.

f) What is the probable market for ATS metal stoves

To obtain the following years probable market for ATS metal stoves, ATS should write to selected wholesalers and retailers enclosing details of the stove, mentioning that they are currently preparing their production schedule and asking:

- how many ATS stoves are you likely to buy during the year
- how many similar stoves will you buy in total.

Such a letter is not likely to be fully effective and ATS must also obtain an estimate of the followings years market by

- orders generated through ATS extension and demonstration activities
- orders placed with retail outlets test marketing the stove
- orders placed by those taking part in the performance tests.

## METAL STOVE PRODUCTION AND MARKETING STUDY

A reasonable period after the establishment of an efficient production and delivery system for the stoves a simple market research study should be carried out to establish the potential market.

g) Where would the best market be

The answers to the procedure outlined in procedure (f) above will incorporate this information.

h) What would be optimum price/cost structure for the ATS stove

User trials have indicated that a realistic cost based price might be somewhat high. We consider it unlikely that Lesotho Steel would produce the stove for a profit of only M10 and that their actual costs have been inflated. ATS need to establish a standard cost for each model which is to be marketed.

The simplest way would be to have the stove made by a known efficient factory probably in a neighbouring state, indicating that what is required is an engineering service and that no orders will be placed. The standard should indicate, weight, thickness etc of raw material input, wastage percentage, time taken to manufacture each module, cost of materials, cost of labour.

With the knowledge of the standard that can be achieved a realistic invitation to tender can be issued to local producers.

From this information a cost related price could be established. The answers to the marketing questions discussed in (f) above would provide the market related price, and it is expected that a selling price could be fixed which would give retailers and small scale producers a reasonable profit.

## METAL STOVE PRODUCTION AND MARKETING STUDY

### i) Best means of marketing the stoves

A successful marketing campaign ensures that all aspects of the campaign are consistent with each other. A marketing campaign is never successful if, when the message reaches the consumer, the product is not in the shops.

ATS's marketing had only reached 17% of the consumers interviewed.

During our study stoves were only found in Mantsonyane, Mokomahatsi, Co-op stores and Pitseng Spar.

A cohesive marketing campaign should include the following:

- availability of stoves in retail outlets
- brochure attached to the stove (as at present)
- sold at a competitive price
- advertised over the radio
- posters in retail outlets

Periodic sales campaigns, should include

- demonstrations in a store
- linked with sales incentives, such as M15 of goods from the shop (ATS will reimburse the shop)
- installation service

ATS should carry out after sales service to quickly establish the feelings of the customer about the product; incorporate suggestions in the next design revision, and take appropriate action to ensure the customer is satisfied with his purchase.

### j) Maintain quality control

To maintain quality control, training of ATS technical staff will be necessary. Once they are adequately trained they will be able to inspect the goods at the producers factory and point out any defects at an early stage.

The producer must be instructed about the quality of the product before an order is placed by explaining the minute technical requirements and the arrangement must include a clause of non-payment in the event of production, not being to the required specifications.

In addition a minimum number of stoves in a batch should be determined which will ensure adequate resources are devoted to successful production.

However ATS staff should develop their own strategies considering their experience and interpretation of the contents of this report.

## SCOPE OF WORK

Review all available literature (design, production, consultants' reports) (see Durrell, 1984; Kinyanjui, 1985, etc.) relevant to the ATS metal stove.

Analyze current marketing of all metal stoves sold in Luocho (e.g., "Queen", "Dover", etc. based upon Durrell/Technoserve February, 1984 Survey and any other data available) giving:

- a. Sources of supply;
- b. Means of delivery/marketing;
- c. Price range(s);
- d. Estimates of quantities sold of each type of stove;
- e. Estimates of consumer costs;
- f. Estimates of wholesalers' and retailers' margins;
- g. Sources for spares and maintenance;
- h. Advantages/disadvantages of each stove type; and,
- i. Estimated market share (as a percentage of stoves and in numbers of stoves per year) for ATS metal stove within various price ranges (i.e., M150, M200, M250).

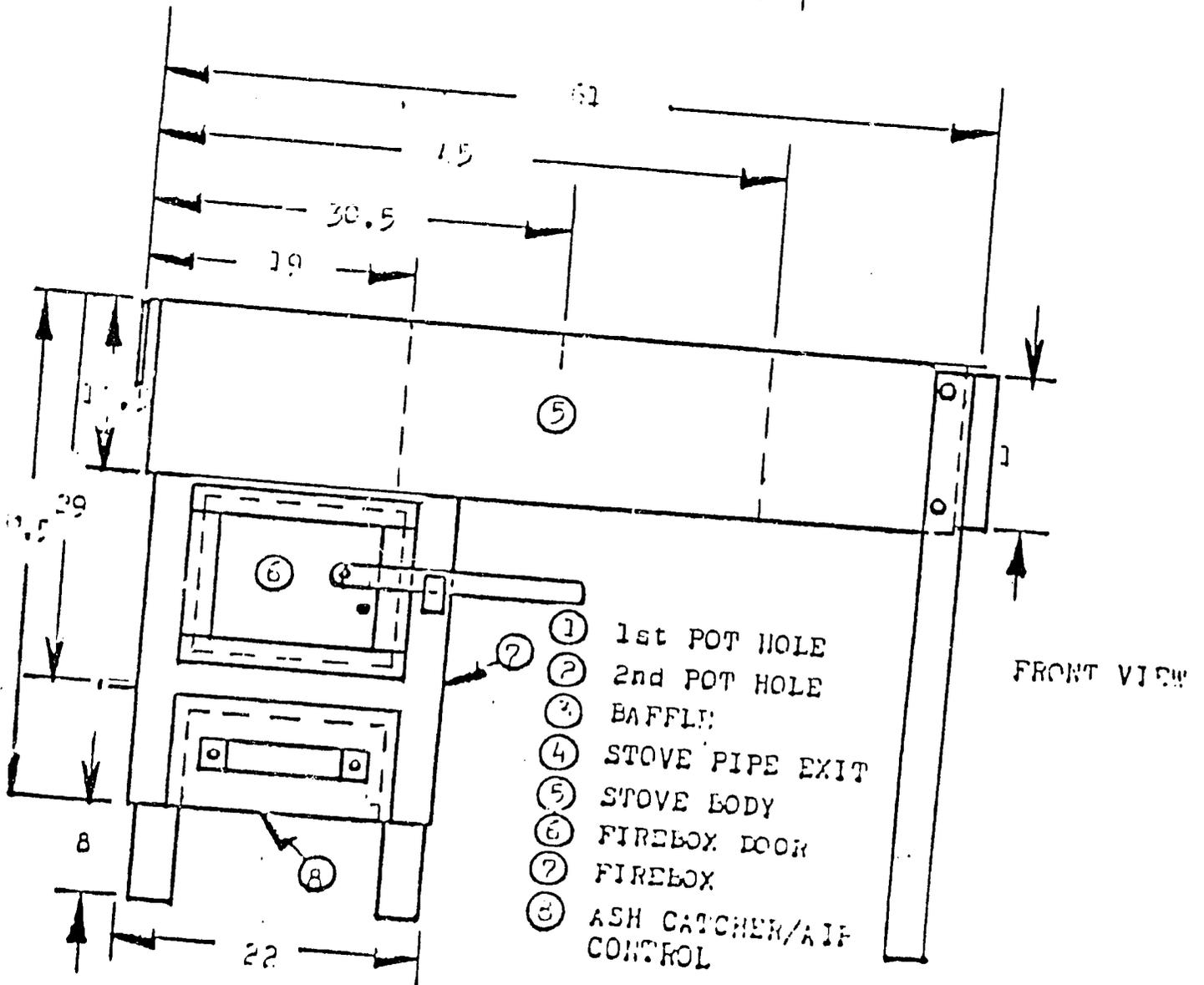
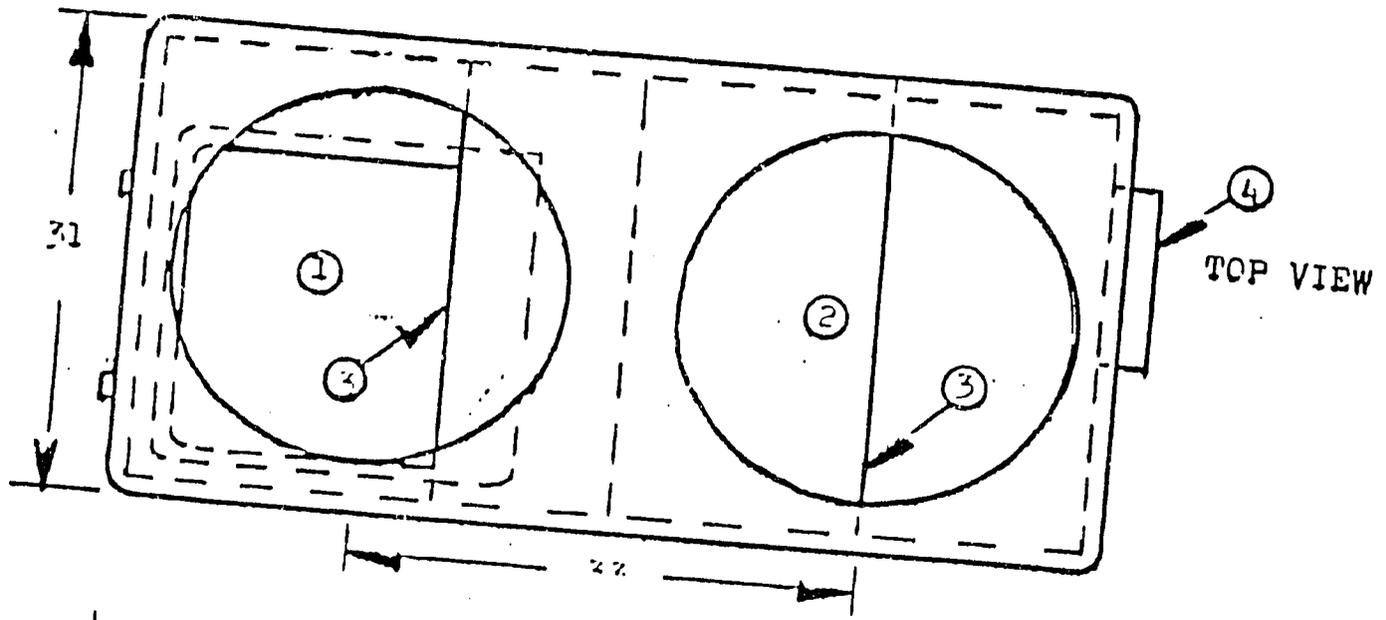
Review history of small-scale production of ATS Metal Stove to determine:

- a. What major bottlenecks have affected small-scale production of the ATS Metal Stove;
- b. Why small-scale producers (i.e., Thaba Khupa Rural Technology Centre, Leribe Technical Institute, etc.) were unable to produce quality stoves, encountered significant delays, etc.;
- c. Probable cost structure for production of stoves by small-scale producers;
- d. If there is potential for small-scale production of metal stoves;
- e. Make recommendations on best course for ATS to adopt to attract producers or contract production).

4. Review history of ATS contracting with Lesotho Steel for large-scale production to determine:
  - a. If production on a large scale is more economically viable;
  - b. If quality control is necessarily better or easier to maintain with large producer;
  - c. If scale production is possible in Lesotho;
  - d. What cost structure would prevail with large scale production at various production levels (i.e., 50, 100, 150, 200, 300, 500 stoves).
  
5. Tabulate and analyze ATS Metal Stove User Trials data to determine:
  - a. Consumer preferences for Stove use (i.e., space heating, cooking, water heating);
  - b. Consumer awareness of Stoves' strengths and weaknesses;
  - c. Problems encountered with Stoves (e.g., installation, problems of using specific types of fuels, etc.); and,
  - d. Consumer suggestions for Stove improvement.
  
6. Analyze current ATS marketing of Metal Stove focusing on:
  - a. Selection and rationale for selection of outlets (e.g., geographical distribution, availability of transport, etc.);
  - b. Cost/Price structure of stove from production to consumer purchase (including transportation);
  - c. Current incentive structure and perceptions of retailers;
  - d. List of customers and locations;
  - e. Reasons (e.g., ATS radio broadcasts/other dissemination programs, friends/acquaintances who owned stoves, etc.) why customers purchased ATS stoves rather than other stoves available on the market;
  - f. How customers have installed stoves (e.g., self-installation, contracted masons, carpenters, etc.);
  - g. How customers perceive the advantages and disadvantages of the ATS metal stove; and,
  - h. Current ATS monitoring, follow-up and support practices.
  
7. Make recommendations for improved user/market feedback based on 5 (above) and suggest means by which the ATS can determine:
  - a. Who purchases stoves;
  - b. How consumers view the stoves;
  - c. How consumers use the stoves;
  - d. What factors govern use of the stove (e.g., fuel availability, need for space heating, slow cooking, etc.);
  - e. What changes could be made in the stove design to improve its marketability (e.g., appearance);
  - f. What is the probable market (numbers and market share) for ATS Metal Stove;

- g. Where would be best markets for ATS Metal Stove (e.g., geographic locales);
- h. What would be optimum price/cost structure (producer, wholesaler, retailer) for the Stove;
- i. What would be best means for marketing the Stoves (e.g., advertising, workshops, etc.);
- j. How best to maintain quality control; and,
- k. How the ATS can improve its market intelligence and better incorporate changes on a basis of changing conditions/perceptions.

RET MODEL 3  
 (Scale 1:5)  
 (in centimeters)



RETAILERS AND WHOLESALERS INTERVIEWED

The following retailers and wholesalers were interviewed for the purpose of this study.

<u>Name of Retailer</u>	<u>Place</u>	<u>District</u>
Fraser's shop	Ha Khabo	Butha-Buthe
Family Centre Furnitures	Butha Buthe	Butha-Buthe
N M A G Gane'e's shop	'Moteng	Butha-Buthe
Anwary's Brothers	Khukhune	Butha-Buthe
Spar Supermarket	Pitseng	Leribe
Nhlapho Supermarket	Pitseng	Leribe
'Metla Kholo No.3	Pitseng	Leribe
Abubaker Supermarket	Hlotse	Leribe
Spar Supermarket	Hlotse	Leribe
Leribe Buy 'n Build	Hlotse	Leribe
Co-op Store	Mokomahatsi	Berea
Co-op store, Mapoteng	Mapoteng	Berea
H H Osman Cash & Carry	Mapoteng	Berea
Anwary's Shop	Teyateyaneng	Berea
Ellerines Furnitures	Maseru Town	Maseru
Fraser's Furnishers	Maseru Town	Maseru
Uptown Furnishers	Maseru Town	Maseru
Fraser's (Lesotho) Shop	Moriya	Maseru
Moriya Hardware Centre	Moriya	Maseru
Nazareth Shopping Centre	Nazareth	Maseru
Litau Shop	Qalabane	Mafeteng
Mafeteng Furniture Centre	Mafeteng Town	Mafeteng
Fraser's Furnishers	Mafeteng Town	Mafeteng
T S Mahommed Stores	Mohale's Hoek Town	Mohale's Hoek
Fraser's (Lesotho) Shop	Mt Moorosi	Quthing
Thabana-Tsooana Trading Store	Mt Moorosi	Quthing
Co-op Lesotho Store	Qacha's Nek Town	Qacha's Nek
Cat-Cat Store	Qacha's Nek Town	Qacha's Nek
Khatleli Store	Salang village	Mokhotlong
Mokrafts (Pty) Ltd (Ha Makhakhe)	Mokhotlong Town	Mokhotlong
Morojele Stores	Mokhotlong Town	Mokhotlong
Co-op Lesotho Store	Mantšonyane	Thaba Tseka
Collier & Yeats Store	Mantšonyane	Thaba Tseka
Spar Supermarket	Majakaneng	Thaba Tseka
<u>Wholesalers</u>		
Bingo Cash & Carry	Maseru	Maseru
Metro (Lesotho) Wholesale	Maseru	Maseru
Fraser's Buy 'n Build and Wholesale	Maseru	Maseru
Cash Build Wholesale	Maseru	Maseru
Jack Yudelman Wholesale	Qacha's Nek	Qacha's Nek
Jandrell's Wholesale	Mohale's Hoek	Mohale's Hoek

USAID: ATS METAL STOVE MARKETING SURVEY

WHOLESALE AND RETAILERS QUESTIONNAIRE

1. Date of interview: \_\_\_\_\_
2. Name of the retailer: \_\_\_\_\_
3. Address of the retailer: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
4. Did you sell any ATS metal stove :  
If yes, how many stoves did you sell?: \_\_\_\_\_  
For how much did you sell the stove?: \_\_\_\_\_  
Are you still selling those stoves ? : \_\_\_\_\_
5. If no, are you aware that the ATS metal stove is sold within the  
country ? : \_\_\_\_\_

FOR RETAILERS AND WHOLESALERS WHO SELL 'MABOTLE STOVE

6. How are deliveries made ? : \_\_\_\_\_  
How much do the deliveries cost ? : \_\_\_\_\_  
Are there any agreements with ATS ? : \_\_\_\_\_  
\_\_\_\_\_
7. Did you receive any complaints from the customers concerning the  
ATS stove ? :  
If yes, did you discuss them with ATS ? : \_\_\_\_\_
8. Did ATS organise demonstrations around your area ? : \_\_\_\_\_  
\_\_\_\_\_
9. Do you think your customers know much about the ATS stove ? :  
\_\_\_\_\_

10. Do you have any comments about the stove ?; \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

FOR RETAILERS AND WHOLESALERS WHO DO NOT SELL ATS STOVE

11. Are there any other retailers who sell the ATS stove around your area ?; \_\_\_\_\_

12. Information relating to other stoves:

(a) Who are the suppliers of such stoves ?;

\_\_\_\_\_

(b) What are the means of delivery ?;

\_\_\_\_\_

(c) What are the means of marketing ?;

\_\_\_\_\_

(d) For each type of stove, estimate quantities sold per year

\_\_\_\_\_

(e) For each type of stove, estimate consumer costs (price ranges)

\_\_\_\_\_

(f) What, roughly, are the retailer/wholesaler margins ?;

\_\_\_\_\_

(g) Who supply the spares and maintenance ?;

\_\_\_\_\_

(h) Would you suggest any advantages and disadvantages of each type of stove ?;

Advantages:

- (1) \_\_\_\_\_
- (2) \_\_\_\_\_
- (3) \_\_\_\_\_
- (4) \_\_\_\_\_
- (5) \_\_\_\_\_

2/1

Disadvantages:

- (1) \_\_\_\_\_
- (2) \_\_\_\_\_
- (3) \_\_\_\_\_
- (4) \_\_\_\_\_
- (5) \_\_\_\_\_

13. Any other comment(s): \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_



ATS METAL STOVE MARKET SURVEY  
SMALL SCALE PRODUCERS QUESTIONNAIRE

1. Date of interview: \_\_\_\_\_
2. Name of Producer: \_\_\_\_\_
3. Address of the Producer: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
4. Did/(are) you produce/(ing) 'Mabottle stove: \_\_\_\_\_  
If no, did you know that such a stove is produced and developed  
within the country?: \_\_\_\_\_  
\_\_\_\_\_
5. If yes, since when did you produce the stove?: \_\_\_\_\_
6. Have you got the necessary equipment to produce the stoves?: \_\_\_\_\_  
\_\_\_\_\_

FOR SMALL SCALE PRODUCERS WHO PRODUCED 'MABOTLE STOVE

7. How much do you produce? : \_\_\_\_\_  
Any rejections? If so why?: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
8. How much did it cost you to produce one stove?: \_\_\_\_\_  
How long, roughly did it take you to produce the stoves?: \_\_\_\_\_  
\_\_\_\_\_
9. Did ATS give specifications of a) materials used?: \_\_\_\_\_  
b) measurements and size of stoves?: \_\_\_\_\_

10. When modifications were made on stoves, did ATS give you new modifications ? : \_\_\_\_\_
- Fire grate raised by 4 cm reducing fire depth from 15 cm to 11 cm ? : \_\_\_\_\_
  - Fire box lined with ceramic slabs ? : \_\_\_\_\_
  - Fire baffle reduced to half its height ? : \_\_\_\_\_

MATERIALS USED

11. Are the raw materials readily available ? : \_\_\_\_\_
12. Is the price of raw materials: Cheap ? : \_\_\_\_\_  
Reasonable? : \_\_\_\_\_  
Expensive ? : \_\_\_\_\_
13. Would you recommend any cheap way of producing the ATS stove ? : \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

TRAINING OF STAFF

4. Does ATS provide any technical assistance and training ? : \_\_\_\_\_  
If yes, how often ? : \_\_\_\_\_  
\_\_\_\_\_
5. Do you have any technical problems due to lack of experience in metal stove production ? : \_\_\_\_\_  
\_\_\_\_\_

GENERAL

Did you meet any problems concerning the production of this 'Mabotte stove ? : \_\_\_\_\_

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If no, do you anticipate any problems ?; \_\_\_\_\_

17. If so, did you discuss your problems with ATS for producing the stove ?; \_\_\_\_\_

18. What do you think are the major bottlenecks affecting production of the ATS metal stove ?; \_\_\_\_\_

19. What do you think are the reasons for not producing quality stoves ?; \_\_\_\_\_

20. Do you think you can produce more than what you are currently producing ?;

If yes, how much more ?; \_\_\_\_\_

If no, what are the reasons for not being able to produce more ?; \_\_\_\_\_

What is the present cost structure for one stove (average) ?

	<u>M</u>
Materials	.....
Transport	.....
Other expenses	.....
	_____
Total	_____
Time spent (Hours)	_____

REMARKS

\_\_\_\_\_  
\_\_\_\_\_

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COMMENTS: (Continued)

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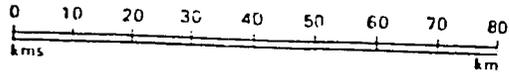
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ROAD MAP OF LESOTHO

Scale 1:1 267 000



- Main Roads
- Secondary Roads
- Tracks
- Bridle Paths
- International Boundaries
- Mountain Passes
- Border Control Posts
- Capitals
- Large Towns
- Towns
- Villages
- Missinns
- Heights in metres 3482m



X = PLACES VISITED

*Handwritten mark*

Villages Visited

The following villages were visited for the purpose of this study.

<u>District</u>	<u>Village</u>	<u>Area</u>	<u>Number of interviews</u>
Butha-Buthe	'Moteng	Mountains	21
	Ha Marakabei	Foothills	18
	Qalo	Lowlands	8
	Ha Khabo	Foothills	10
	'Mate	Foothills	6
			<hr/>
			63
			==
Leribe	Qoqolosaneng	Mountains	35
	Ha Nkhasi	Foothills	25
	Nqechane	Foothills	17
	Levi's Nek	Lowlands	17
	Pitseng	Foothills	42
	Maryland and Mobollo	Foothills	28
			<hr/>
			164
			===
Berea	Ha Lebese, Ha Mpeshe	Mountains	20
	Moletsane	Foothills	17
	Mokomahatsi	Lowlands	38
	Mapoteng	Lowlands, urban	8
	Ha Ntlama	Lowlands	32
			<hr/>
			115
			===
Maseru	Nazareth and Machache	Mountains	26
	Mokema	Foothills	17
	Morija and Matsieng	Foothills	26
	Ha 'Mantšebo	Lowlands	27
	Mazenod	Lowlands	23
			<hr/>
			119
			===
Mafeteng	Mafeteng Town	Urban	3
	Qalabane	Lowlands	41
	Thabana Morena	Foothills	82
			<hr/>
			126
			===

Villages Visited (continued)

<u>District</u>	<u>Village</u>	<u>Area</u>	<u>Number of interviews</u>
Mohale's Hoek	Maphutseng	Mountains	53
	Mpharane and Ha Tšepo	Foothills	59
	Mohale's Hoek Town	Urban	5
			<hr/> 117
			===
Quthing	Mount Mporosi	Mountains	26
	Lower & Upper Moyeni	Mountains	20
	Quthing Town	Urban	2
			<hr/> 48
			==
Qacha's Nek	Tsoelike	Mountains	8
	Ha 'Mamosa	Mountains	22
	Ha Mpiti	Mountains	12
			<hr/> 42
			==
Mokhotlong	Salang Village & Town	Urban	12
	Ha Lebopo	Mountains	17
	Ha Setha	Mountains	11
	'Malefiloane	Mountains	17
			<hr/> 57
			==
Thaba Tseka	Sehonghong	Mountains	8
	Mashai	Mountains	10
	Ha Moqekela	Mountains	8
	Majakaneng	Mountains	27
	Ha Leronti	Mountains	10
	Ha Toka	Mountains	10
	Thaba Tseka, Town	Urban	8
		<hr/> 81	
			==

USAID - ATS METAL STOVE

QUESTIONNAIRE FOR CUSTOMERS

1. Date of interview: \_\_\_\_\_
2. Name of the customer: \_\_\_\_\_
3. Address of the customer: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
4. Population in the location: \_\_\_\_\_
5. What do you use for:
  - cooking \_\_\_\_\_
  - space heating \_\_\_\_\_
  - water heating \_\_\_\_\_
6. Are you aware of 'Mabottle Stove ?': \_\_\_\_\_  
If so how did you come to know of it ? : \_\_\_\_\_  
\_\_\_\_\_  
Is it freely available ? : \_\_\_\_\_
7. Do you own a 'Mabottle stove ?': \_\_\_\_\_  
If no, what type/s of stove/s do you own ? : \_\_\_\_\_  
Why not 'Mabottle stove ?': \_\_\_\_\_  
If yes, are you aware of other stoves ? : \_\_\_\_\_
8. How much did you pay for the stove ? : \_\_\_\_\_

(Note: If the person does not own 'Mabottle stove, answer questions 10,11, 14, 15, 21 and 27)

9. - From where did you buy the stove ?; \_\_\_\_\_  
- How many other families use this stove in your area ?; \_\_\_\_\_  
- Why others are not using this stove ?; \_\_\_\_\_  
\_\_\_\_\_

10. Did anyone explain the following ?:  
- How to operate ?; \_\_\_\_\_  
- How to instal ?; \_\_\_\_\_  
- What fuel can be used ?; \_\_\_\_\_  
- For what purposes the stove can be used ; \_\_\_\_\_

11. Who installed the stove in your house ?; \_\_\_\_\_

12. If installed by a contractor, how much did you pay him ?; \_\_\_\_\_

13. How long have you been using this stove ?; \_\_\_\_\_

14. What do you like about the stove ?; \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

15. Do you like the design, appearance and size ?; \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Do you find it safe to use ?; \_\_\_\_\_  
\_\_\_\_\_

16. What fuel do you use and why ?; \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

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16. (Continued)

How much do you have to use (In value)?: \_\_\_\_\_

17. Have you got any problems with the availability of the fuel you use?: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

18. Why you don't use other fuel: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

19. How often do you use the stove, and what time of the day?: \_\_\_\_\_

When you are not using the stove what else do you use?: \_\_\_\_\_

20. Is there any difficulty in starting the fire in the stove?: \_\_\_\_\_

If yes, what are the problems?: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

If no, how long does it take before you can use it?: \_\_\_\_\_

\_\_\_\_\_

Do you use the stove for

- cooking: \_\_\_\_\_

- space heating: \_\_\_\_\_

- water heating: \_\_\_\_\_

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22. Do you use both the plates at one time ?: \_\_\_\_\_

Are both the plates heated uniformly ?: \_\_\_\_\_

23. How long does it take you to cook on this stove ?: \_\_\_\_\_

Do you think it saves you time ?: \_\_\_\_\_

24. Can you cook everything on this stove ?: \_\_\_\_\_

25. Does it heat up your house to your satisfaction ?: \_\_\_\_\_

26. How long does it take to heat up the house ?: \_\_\_\_\_

27. Do you have any problems with the stove ?:

- controlling the fire \_\_\_\_\_
- adding fuel \_\_\_\_\_
- smoke escaping into the house \_\_\_\_\_
- cleaning the stove/chimney \_\_\_\_\_
- the ash catcher/ air control \_\_\_\_\_
- heating of plates \_\_\_\_\_
- any other problem \_\_\_\_\_

• If answer to 27 is yes, did you complain about your problems, if so to whom ? \_\_\_\_\_

• Was your problem attended to: \_\_\_\_\_

• What do you think about the price of the stove ?:

- reasonable
- cheap
- expensive

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