The Situation of Woodfuel Supply and Demand in Mogadishu

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Introduction

Even nowadays fuelwood and charcoal are the most important energy sources in many developing countries. At the end of the 1970's, especially in African countries like Mali, Niger, Tschad or Burkina Faso, fuel from wood amounted to more than 85% of the whole energy consumption (Celceschi 1983:16). On the other side, especially in countries with a semiarid climate, wood resources are limited and very often dramatic shortages occur.

Despite its importance woodfuel is often called a «traditional» fuel in a disparaging way, neglecting its advantages. It is the most adequate fuel for major parts of the population and the only one which can be paid for by the poor people. It does not burden the balance of payment and, if well enough managed, it is a renewable source of energy. Therefore, fuelwood and especially charcoal could play an important role in a modern development strategy (Earl 1975: 11).

In 1980 the consumption of fuelwood and charcoal in Somalia is estimated to cover more than 85% of the whole energy consumption. More than 90% of it are used for cooking (Openshaw 1982: 4A). While fuelwood is the dominating energy source in rural areas, charcoal is predominating in major towns, especially in Mogadishu.

Taking the average for the whole country, there is a significant surplus of wood in Somalia (Openshaw 1982: 10). Nevertheless, serious shortages occur at the local and regional level. On the one hand, wood resources are concentrated in the southern part of Somalia. And on the other hand, all areas with larger agglomerations of the population, such as major towns and refugee camps, may be affected by wood shortages.

This paper mainly deals with the present and future woodfuel supply and demand in Mogadishu. The results are mainly based on my own field work in 1983 and 1985.

The Development of Charcoal Supply and Charcoal Prices

The development of charcoal supply in Mogadishu from 1973 to 1985 is characterized by serious shortages in the seasons up to 1982. Since then, the official

charcoal production for Mogadishu has increased by about 80%, which has caused a sufficient supply for the last years.[1] On the other hand, from 1977 to August 1985 the charcoal price in Mogadishu has grown more than 40-fold, whereas the whole consumer's price index has increased only 14-fold.[2] Even during the last years the growth of charcoal prices remained slightly higher than the whole consumer's price index causing serious effects on the cash expenditure of private households: while in 1977 less than 4% of the whole daily cash expenditure was used for charcoal (Ministry of National Planning, S.D.R. 1978), it rose to more than 12% in 1985. And the poorest families had to spend even more than 25% of their daily expenditure only for cooking fuels.

Woodfuel Consumption

The main consumers of woodfuel in Mogadishu are private households. By my own estimates they use at least 90% of the whole charcoal consumption and between 40 and 60% of the whole wood consumption in Mogadishu. Whenever possible the women prefer charcoal, because it has no smoke, it can be controlled much easier, requires less space for cooking, produces fewer ashes and is more adequate to most of the cooked meals than wood. Fuelwood is only used for usual cooking by the poorest families, for baking bread (*muufo*) with a special stove (*jiiko muufo*) and for big feasts. Up to 1982 it has also been the most important substitute for charcoal during the shortages in the rainy seasons.

A representative survey about the household's consumption of woodfuel in Mogadishu has been done in October 1985 covering all together 300 households. The main findings are as follows. More than 95% of all families use charcoal at least sometimes, most of them always for cooking, and more than 90% of the meals are cooked with charcoal. All the households using charcoal have one of the typical charcoal stoves, most of them the soupstone (*buurjiko*), some a ceramic (*dhoobo*) or a table stove (*miiska*). Therefore, the average daily consumption per household is very low, only 2.1 kg. As expected, the consumption varies not only with the size but also with the income situation of the households. The poorest 25% of all families consume less than 1.5 kg per day, while the richest 25% of the families use nearly 3 kg per day. But the income situation is only one reason for these differences. The variable consumption is also affected by different household sizes: on the average, the richer families consist of more members than the poor ones.

The total household consumption of charcoal in 1985 is estimated to be more than 78,000 tonnes (78,000 Kintaal). The charcoal is mainly used for cooking. Other purposes are boiling water for washing and cleaning, making tea or keeping insects out of the house. Because the charcoal prices grew at a higher rate than the average costs of living, the women normally use the remaining heat after cooking for these purposes in order to conserve charcoal. Therefore it was not possible to distinguish between the consumption for cooking and for other purposes.

The annual wood consumption of private households is about 32,000 tonnes.

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[1] Data received from cooperative Cadceed.
[2] Data received from Ministry of National Planning, Statistical Department.

One third of it is used for baking muufo, another 40% is used for normal cooking and about one quarter is used for big feasts.

Woodfuel Production

Fuelwood and charcoal are only allowed to be produced by a licence. Licences are only given to the members of the production cooperatives Cadceed for charcoal production and Golol for wood collection. In addition there is some illegal private production which is estimated to be less than 10% of the whole charcoal production and more than 50% of the wood collection.

Only the most important section, the charcoal production by Cadceed, shall be discussed in detail. It is done in camps, all of them organized in the same way. In 1985 there were 114 camps in the regions of Bay, Baqol, Hiiraan, Lower and Middle Shabelle. Each of them is leaded by a camp owner. He receives the licence and is responsible for financing and administration. He is assisted by a foreman who is responsible for the whole organization within the camp. Only these two — owner and foreman — are members of Cadceed. The actual production is done by charcoal workers, usually 15 to 40 per camp. Each of them is felling the trees and cutting the wood on his own, only being assisted by 2-4 others to build up the charcoal kiln.

The production for Mogadishu only takes place in the regions Bay (56 camps) and Baqol (21 camps). There is a continuous shift of the production areas further and further away from Mogadishu, indicating that most of the areas are overused. Former production sites and the areas which have been under production for more than 10 years are 230 up to 300 km away from Mogadishu. Areas which have been used in the last 5 years are between 320 and 350 km distant and the youngest production sites and all areas in which production is planned to start in the nearest future are 350 km or further away from Mogadishu.

The production techniques are described in detail by Robinson and Smith (1984: 10). The producers or Cadceed use exclusively an improved earth kiln which combines the advantages of several other kilns. The costs are only slightly higher than for traditional kilns. The stapled wood is covered with metal sheets and soil. The metal sheets keep the kiln intact and protect the wood against soil falling down (like a metal kiln). And the soil cover provides the kiln with a good insulated outer surface (like a masonry kiln) which reduces radiated heat losses. In contrast to former estimates Robinson found out that the production techniques have an efficiency of 40% and cannot be increased by any improved techniques (Robinsons and Smith 1984: 15). So fortunately, the amounts of wood necessary for charcoal production are already minimized. On the other hand, it must be realized that no more wood can be conserved in charcoal production.

The Marketing System

Within the complex marketing system only the two most important parts should be mentioned.

1. The charcoal stores of the marketing cooperative Hilaac are selling about 90% of all charcoal in Mogadishu. In 1983, 342 charcoal stores were nearly regu-

larly distributed over the whole city. The charcoal is transported to a weighing bridge at the outskirts of Mogadishu under the responsibility of Cadceed. There it is handed over to the store holders of Hilaac at fixed prices of 240 sh. per Kintaal (1 Kintaal = 100 kg). They have to sell it at 2.7 sh per kg to the customers. But in reality charcoal is sold at a price of 10 sh per kg. This means an extra surplus for the storeholders of approximately 300%. Up to 1983 the gap between the official and the real charcoal price could be explained by the shortages in the rainy seasons. But today the main reasons for the extremely high prices are others. There is no effective control of the real charcoal prices and the storeholders do not have to fear any major rivals. They make the price, and the customers have to accept it.

2. At the markets charcoal and wood of different quantities are sold. All of it is produced illegally (by private charcoal producers or wood collectors without any licence) but legalised by the Local Government when entering the market. This demonstrates the whole conflict between a sufficient supply of fuelwood and charcoal today and in the future. On one hand, most of the areas with illegal production of wood and charcoal are already over-used and need to be protected, if they should be useful for charcoal and wood production in the future. On the other hand, nowadays the illegal production is necessary to reach a sufficient supply of woodfuel in Mogadishu.

Comparing Charcoal Supply and Demand

From the total household consumption of charcoal, which is estimated at 78,800 t in 1985, more than 72,000 t were bought in cooperative stores. Estimating other uses (2500 t), 2% of dust and fines which are used by limestone producers (Robinson and Smith 1984: 27) and about 1000 t of brands (halfburnt charcoal), the total turnover at the cooperative stores would be about 78,000 t. In contrast, the officially registered charcoal was only around 50,000 t. So, approximately one third of all charcoal pruduced by Cadceed is illegally bypassing the weighing bridge and transported directly to the Hilaac stores. In fact, this is not astonishing. The producers of Cadceed and the merchants of Hilaac are working close together. Even most of the producers are members of Hilaac, too, and they find their way to save the taxes they would have to pay at the weighing bridge and increase their own profit in using an illegal marketing channel.

The private charcoal production which is mainly brought to the markets is estimated between 5,000 and 10,000 t in 1983. Compared to it, the quantities of charcoal bought at the markets in 1985 were about 4,000 to 5,000 t. Assuming that the private production has decreased during the last years, because the production of Cadceed has largely increased, the tournover can be estimated to be 5,000 t in 1985. Other sources, such as camel loads or charcoal from military drivers are estimated to be approximately 2,000 t. So the total charcoal consumption for Mogadishu in 1985 was about 85,000 t.

The Future Situation

It is not even possible to give an approximate figure of the future charcoal demand. According to different assumptions, the whole demand would range bet-

ween 85,000 and 130,000 t for 1995. So, even the lowest estimation does not indicate any reduction in charcoal demand during the next 10 years.

On the other hand, a visit to different production sites in 1983 has lead to the suggestion that the areas suitable for charcoal production are rapidly declining. All visited areas have been seriousy over-used. The producers did not confine themselves to the law which allows them only to use the oldest, dead or deseased trees. They were using almost every tree, leaving behind large deplanted, unproductive areas. Very often these areas are used for grazing and agriculture afterwards, and so there is no chance for the vegetation to regenerate.

The results are disastrous. Even at places where charcoal production had stopped 12 to 20 years ago, you see widespread planes of serious soil erosion. Everybody who visited the areas around Awdiinle or Berdaale in recent times, will remember large planes with rocky surfaces or plenty of stones on the ground — stone which had been completely covered by soil before the charcoal production began.

In most parts of the Bay Region wood can not be called a renewable energy source. Many of the areas which had only been under charcoal production for one time may not regenerate any more. This means that the annual stock regrowth of wood is decreasing from year to year — a process which has to be stopped immediately. Otherwise serious woodfuel shortages in Mogadishu would occur within the next 10 years.

Possible Solutions

The hope in large scale of *substitution of charcoal* in the foreseeable future has failed. Up to now there is no chance to use solar energy for cooking in a way adequate to the household needs. The natural gas found close to Afgooye is too limited to be used in large scale substitution. And electricity would be too expensive for most of the households, even in the future.

The wood resources could be increased to a certain amount by *fuelwood plantations*, as started with the Mogadishu-Merka-Fuelwood-Project. But, up to now, experience in planting fuelwood are very limited, and the costs would be considerably high.

Measures of *wood conservation* are also very limited. As the charcoal production is very efficient even today, there would be no chance to improve the production techniques. On the other hand, charcoal could be conserved by introducing more efficient stoves. Though the traditional soupstone stove has a rather high efficiency, VITA has constructed and improved soupstone stove that would save up to 30% of the charcoal. Nevertheless, such a stove could only be successful, if the households really try to conserve charcoal. Therefore the introduction of the stove has to be combined with a campaign for charcoal conservation. But the success of such a campaign may be very little as long as sufficient charcoal is available.

Measures for *protection and reforestation* of the production areas have to be taken. Such measures would only be successful, if the financial basis and the political power of the National Range Agency (NRA) which is responsible for the measures could be improved and if the support of the producers themselves could be gained.

References

Cecelsky, E. 1983 «Energy Needs, Tasks and Resources in the Sahel: Relevance to Woodstoves Programmes», *Geo Journal* 7,1: 15-23.
Earl, D. E. 1975, *Forest Energy and Economic Development*, Oxford.
Ministry of National Planning, S.D.R. 1978, *Mogadishu Family Budget Survey 1977*, Mogadishu.
Openshaw, K. 1982, *Somalia: The Forest Sector. Problems and Possible Solutions*, Mogadishu.
Robinson, A. P. and A. E. Smith 1984, *The Charcoal Industry in Somalia: a Techno-Economic Appraisal*, London.