

SUSTAINABLE CHARCOAL PRODUCTION AND MARKETING IN HANDENI DISTRICT

- A PROPOSAL FOR SELLING AN IDEA –

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1. INTRODUCTION

This report deals with the theoretical as well as the practical aspects of trying to introduce sustainable production and marketing of charcoal from public and village lands in a pilot area in Handeni District. The wording “trying to” is a deliberate choice as the Author is not sure if it can be introduced in Handeni District. There exists no doubt, that from a technical point of view sustainable charcoal production and marketing can be successfully introduced in Handeni District. But when introducing a new idea or a change it is never the technical aspects that determine its acceptance. In the final analysis it is always the financial, socio-economic, cultural and political aspects or implications that decide if a new idea is acceptable or not.

It is for this important reason that the study and the report do not concentrate on technical aspects of charcoal production and marketing. They are really deemed to be of secondary importance. Instead the emphasis is on the financial, institutional, socio-economic and ultimately the political aspects of charcoal production and marketing. The whole thrust of the argumentation is that if the Handeni District Council and the Forest and Beekeeping Division (FBD) wish to introduce this new idea or in other words wish to change the current system, they are *forced* to sit down with producers and traders and discuss and negotiate.

The word “forced” is used deliberately and in more than one sense. They are forced because there is, as argued in the report, no alternative than to negotiate. But it also means that if the District and FBD are really and genuinely interested in negotiating about sustainable charcoal production and marketing that they are forced to change from a management by control system to a management by consent system. It furthermore means that both institutions are forced to become much more transparent and accountable to producers and traders. Lastly it means they have to develop the political willingness to apply their given powers in a positive and constructive manner, to develop a common vision and to punish those individuals within their organisations displaying bad behaviour (corruption for example) and reward those showing good behaviour. Ultimately sustainable charcoal production and marketing is not a technical exercise but an exercise in democracy and good governance.

Within the framework of the Terms of Reference the study and the subsequent report are to be considered the starting point of this discussion and negotiation process that would hopefully result in the introduction of sustainable charcoal production and marketing in the District. For this purpose the report is divided into two separate but interlinked sections.

The first section is a background paper. It analyses charcoal in financial, socio-economic and political terms and discusses the necessity of introducing sustainable charcoal production and marketing through a negotiation and discussion process. It also elaborates items of importance for the discussion and negotiation process and presents an outline of the different steps in the process.

The second section contains a proposal that should serve as the basis for the envisaged discussion and negotiation process.

If it turns out that sustainable charcoal production and marketing can not be introduced in Handeni District this can only mean one of two things:

- The whole idea of sustainable charcoal production and marketing on public and village lands in Handeni District is financially not feasible and economically not viable at this point in time.
- The public sector does not have the political will to change the current system.

There are indications that at least in some areas in Handeni District it could be feasible and viable to introduce the idea of sustainable charcoal production and marketing if the political will exists.

Although both FBD and Handeni District Council have indicated their willingness to change the current system, this study is not the first that has been requested to look into the problem. Issues directly or indirectly related to charcoal production and marketing in Handeni District have been

examined during the last few years. Amongst others Kobb & Mpelumbe, 1996 (Revenue Collection in Handeni District), Kobb, 1998 (Forestry Royalties in Tanga Region), MNRT – FBD/GTZ; NRBZ, 2000 (The role of incentives for the promotion of sustainable natural resources management on district level) have all highlighted existing problems. Recommendations were made on how these problems could be addressed. The major and most important recommendations have however not been implemented. Why? One can not escape the impression that insufficient political willingness did play a role in the non-implementation of the recommendations.

The major weakness of all these recommendations was however that they did not spell out the inevitable political cost and benefits of the proposed changes. Hence they did not make explicit what everybody implicitly knows: changing the current system of charcoal production and marketing will come at a cost. Some stakeholders will gain and others will loose out. And those who stand to loose will of course oppose any changes. By making all the cost and benefits of these changes explicit and more transparent in the present proposal it is hoped that the debate would find a politically acceptable compromise to the task at hand.

Although GTZ NRBZ has financed the study, they should not, apart from financing two independent or rather two impartial facilitators, be involved financially or technically in the process of trying to introduce sustainable charcoal production and marketing in Handeni District. As the investments in the successful introduction of sustainable charcoal production are very small and hence can and should be financed by the Council and FBD themselves and techniques used simple and available, donor money and expertise is not required. Moreover a donor can not finance political willingness, which is the most important factor in the process, nor can offering technical and financial assistance compensate for the lack of political willingness.

SECTION 1: THE “IDEA”

2. CHARCOAL PRODUCTION AND MARKETING

2.1 What is Sustainable Charcoal Production and Marketing?

Normally, sustainable charcoal production and marketing is presented as a technical forest issue. Without going into too much detail it can simply be defined as a system whereby the level of the harvesting of certain tree species for charcoal and other wood uses and the harvesting techniques used does not exceed nor harm the Mean Annual Increment (M.A.I.) of a particular forested area. If the harvesting exceeds and/or damages the M.A.I. the forest for sure will either be degraded or depleted. The difference between degradation and depletion is that with degradation only certain tree species disappear, with depletion the whole forest will disappear.

The comparison with a savings account that accrues interest makes this idea very clear. If you limit your bank withdrawals to the amount of interest you receive on your principal each year, you can withdraw money in perpetuity. Your “harvesting” of money is sustainable. If you spend more money than what you earn in interest or in other words eat into your principal, the next year your interest earnings go down. If you persist in this habit of spending more than you earn your savings account will get depleted and in the end nothing is left.

This definition is however too limited. There are other than only technical aspects to the definition of “sustainability”. One aspect is that there needs to be a market for charcoal. To produce something which nobody buys is obviously not sustainable. In that sense charcoal is a sustainable product for some time to come.

What is however less obvious and often underestimated or even misunderstood is that with the growing demand for charcoal and other forest products the production needs to be managed in order to be sustainable. In the past with few people around, a very small demand for forest products and an abundance of forests, simple extraction or exploitation was a good enough system. Nature took care of the rest. But with a growing number of people and a growing demand for forest products and the land underneath forests, exploitation becomes an inappropriate system and forests need management.

Management implies a number of things. Firstly that costs or investments have to be made (research, planning, patrol, control, fire prevention, enrichment planting, inventory, people, cars, etc.) to make sustainable production possible. Secondly, the benefits from management should be higher than the investment cost because if this is not the case management makes no sense. Thirdly, management is aimed at optimising the outputs from these forests. Foresters are people who are trained to squeeze the last bit out of forests without really damaging it.

Somebody somewhere and somehow has to pay for these investments or costs. This can be done in a number of ways. But whichever is the case, to undertake management requires inputs and these inputs have to come from somewhere and someone. It is like feeding a cow on zero grazing for milk production. You have to put time, labour and money into feeding the cow in order to get milk out of it and make money. If you do not feed it enough the beast will produce less and less milk and in the end it will drop dead. It is the same with forests.

Lastly, the one who invests in the management should also receive an appropriate reward for the management efforts or return on the investments made. These rewards do not necessarily have to be monetary profits. A donor that invests money in the successful management of a forest in Tanzania will be rewarded in non-monetary terms like for example emotional satisfaction of their constituents at home. Another reward could be the satisfaction that they have contributed towards poverty alleviation in Tanzania or combating global warming. Emotional rewards are as important as financial rewards.

It is the whole cost and benefit issue that makes sustainable charcoal production and marketing so difficult to introduce. It is not only a matter of defining what these costs and benefits are and who should share how much, where and when, but more so a matter of comparing the costs and benefits of the current system with those of the new system.

The next Chapter tries to shed some light on this Cost-Benefit issue.

2.2 Charcoal production and marketing system in Handeni District

The current production and marketing system for charcoal from what is currently called public land and unreserved village lands in Handeni District can be characterised as totally unplanned, virtually uncontrolled and largely illegal. That it is virtually uncontrolled can be seen from the Royalty Collection Compliance rate.

The official Royalty figures from July 2000 to February 2001 for the whole of Handeni District show that permits were issued and payments made for a total of 11 bags of charcoal per day. However, based on reports, interviews and observations, actual production figures for the whole District are conservatively estimated at 1,000 bags of charcoal per day. Control and patrol carried out in the field was somehow able to narrow the gap between actual and potential revenue collection with an estimated another 11 bags per day. In other words out of every 100 trees cut for charcoal the Authorities managed to control one before felling and intercepted another one after it was felled.

The above mentioned problem is neither unique for Handeni nor a recent one as a report from a Consultancy Company (Silviculture) 1991 indicates:

There is little point arguing the toss about whether replacement costs or residual values are the most appropriate basis on which to price standing timber, if the methods of collecting the money is so inefficient that a significant proportion of wood harvested is acquired at no price at all, save that of the wood cutter to cut...It is widely recognized that evasion of royalties and other forestry fees is widespread and that little of the money that should be collected is collected." pages i-iii).

Using the sustainability aspects described in Chapter 1 in analysing this system one can only conclude that although there exists a management system on paper in the form of Laws, rules, regulations and foresters on the ground, in reality the system is not managed. It is based on old-fashioned exploitation that virtually completely disregards the rules, regulations, laws and foresters on the ground.

Even if the conversion of forested areas into agricultural land, which is the biggest single deforestation factor in Handeni District, would stop tomorrow, the exploitation system is not sustainable anymore. Being uncontrolled and unplanned the production areas closest to the demand centres are exploited first to point of depletion before moving away from these demand centres. This can be observed around Handeni town and in East Handeni, along the Segera – Chalinze Highway.

Some people argue that it is the level of charcoal production, in other words a technical aspect that is causing the system to be not sustainable anymore and hence production should be curbed or stopped altogether. Is this a correct assumption?

Handeni district is one of six districts constituting Tanga region but covers 48% or 1,411,051 Ha of the region's territory. 95.9% of Handeni District can be classified as forested area.

Handeni District has the following categories of forested areas:

Forest type	Area (Ha)	Cover (%)
Forest	34,427	2.4
Woodland	814,140	57.7
Bushland (woodland with scattered cultivation)	302,230	21.4
Grassland (10 – 20% tree cover)	202,866	14.4
Total	1,353,663	95.9

Source: The Role of Incentives for the promotion of Sustainable Natural Resources on District Level, Page 2 (Report No.: 00/005 GTZ-NRBZ-URT, Feb. 2000)

Of the total of 1,353,663 Ha of forested area, 333,000 Ha has a reserved status, i.e. either territorial or local government forest reserve or game controlled area. This leaves technically speaking a little bit more than 1,000,000 Ha of mainly woodland and bushland where technically speaking charcoal production could take place. However, from a commercial and sustainability point of view one can safely subtract another 600,000 ha, which are either not viable at the moment or where exploitative practises can not be changed anymore. This leaves around 400,000 ha that could be commercially exploited for charcoal production. Taking into consideration the variations in forest cover, preference for certain tree species and other demands for wood products, and as long as the production is managed and does not exceed a conservative M.A.I. of 0.3 M³/Ha/year, than it is in principle sustainable.

The above calculation would mean that if no more forested area would be converted into agricultural land, Handeni District would have 120,000 solid M³ of wood available for sustainable charcoal production or in other words would be able to produce around 600,000 bags per year without depleting the forest. The current production is estimated at between 350,000 to 400,000 bags per year.

Although the potential sustainable production figures are admittedly based on back of the envelope calculations they are not baseless and show that levels of charcoal production or the technical aspects of sustainability are not per definition the culprit. The fact that the current charcoal production levels are most probably sustainable on District level does not mean that current production levels in certain villages in Handeni District is sustainable. It is most likely that there are some villages along the Segera – Chalinze road where it is not. The reason for this is that uncontrolled production tends to concentrate in first instance in those areas most accessible to traders and hence where charcoal is cheapest to transport to the consumption areas.

On the whole, it is much more likely that the cost aspect or the lack of investments in the management system is the primary cause of the non-management and the subsequent non-sustainability of the current charcoal production and marketing system.

With the current Royalty Rate of Tshs 400/bag the production of 350,000 bags per year in Handeni should have netted a potential gross Revenue of Tshs 140,000,000, part of which is supposed to be reinvested in the same Handeni woodlands for management where the charcoal originated from. It is of course impossible, or rather uneconomical, to reach a 100% tax compliance rate but a 60% compliance rate or Tshs 84,000,000 should be attainable.

Although it is not known precisely how much is required to manage the forests on unreserved lands in a sustainable manner, it is highly doubtful whether that requires the full amount of Tshs 84,000,000 per year. But it is equally highly doubtful that this could be done for Tshs 9,000,000, which represents the aggregated Royalty Collection figure for charcoal in Handeni over a 12 months period during 2000/2001. In short sustainable charcoal production seems to be a profitable proposition.

Apart from making foresters available for management purposes, it is not known how much money for example the central Government is providing the foresters in Handeni to enable them to undertake their jobs in the most efficient and effective manner possible. What is known though that

a Donor, NORAD, is contributing towards the management costs through the catchment forest project and that the foresters on the ground rightfully complain about the lack of means to carry out their tasks.

This seems a bit odd. If the management of these forests is such a profitable proposition and current system so destructive, as everybody says it is, and the above calculations seem to support this notion, then why has the Government not chosen to invest enough in this management? And why does it need a donor to financially assist the Government?

Management costs are not only monetary and the Central Government is not the only stakeholder that could have invested in a more controlled and better planned charcoal production system. Why did not for instance the producers invest labour and time in a more sustainable charcoal production system? After all, they would surely suffer when their source of income would dry up if they deplete the forest resource.

The same goes for the District Authorities. Also they would suffer when the forest would disappear, as it would deprive them from their Cess income (currently Tshs 400/bag or 100% of the Royalty Rate) And what about the traders? To haul the charcoal from ever-greater distances to the consumption areas surely is adding an additional cost which due to competition from other producing areas they can not fully pass on to consumers.

There can be only but one explanation for this seemingly contradictory situation of continuing with an exploitative production and marketing system that is less profitable than a system based on sustainable utilisation. The current system must be more profitable at least to some stakeholder groups than it looks like at face value. There must exist a number of valid reasons why the cost-benefit analysis of different stakeholders decides in favour of the current system. Because if not, they would have collectively chosen to change the system already long time ago.

2.2.1 Why producers never invested in sustainable charcoal production

The study found only a few “professional” charcoal producers, the vast majority of producers are subsistence farmers who produce charcoal if and when possible and required. This means that during the rainy season less charcoal is produced than in the dry season, as labour is required on the farms.

After a good harvest they are less inclined to produce charcoal during the dry season than after a bad harvest. Due to the labour fluctuations and other seasonal influences (road and weather conditions) and differences in production location producer prices fluctuate as well. They can be as low as Tshs 700 (bad harvest, dry season and hence many charcoal producers in a relative small demand area) to Tshs 1,500 (rain season and hence a few charcoal producers in a large demand area). An average producer price of Tshs 1,250/bag can be assumed (2000/2001 figures)

For subsistence farmers charcoal production is an integral part of their survival and poverty alleviation strategy. Although the numbers fluctuate and not everybody has to engage in charcoal production in a village it is for the vast majority of the subsistence farmers their only means of cash income. Figures varied but in those villages where charcoal production is commercially viable, after a bad year up to between 50% and 75% of the adult male population is engaged in charcoal production. Also a few women were said to be engaged in actual charcoal production.

Generally disliked, heavy and unhealthy work that brings them very little in monetary terms, it is nevertheless relatively risk free (constant demand for charcoal and known prices) and carries very few uncertainties. In months when labour is relatively available a farmer can produce between 15 and 18 bags/month or earn about Tshs 18,000, if no taxes are paid.

There exist a number of very good reasons as to why farmers have not invested in changing their current production system:

- Sustainable production is legal production. If they have to pay the Tshs 400 Royalty and Tshs 400 Cess it would push them even further into poverty. Although they know that these duties have to be paid and that at the moment they are producing illegally, they are obliged to avoid them. (sometimes they are not lucky)
- In some cases it would mean that production has to be limited, which is not in line with poverty alleviation as far as the farmer is concerned
- They do not trust the Government, as it seems to them that government officials are only there to extract money from them rather than to help them. District Foresters, Ward Officers, Village Governments, Catchment Officers and Police, all could and sometimes are asking for money, legally or illegally. To pay tax and to get something back from the Government like schools, roads, security, etc. is one thing but to pay tax and get virtually nothing in return is quite another one.
- The number of officials, i.e. Catchment Forest Officers, District Foresters, Ward Officers, that seem to have an authoritative say in forest matters confuses them. There is no clear message. Moreover who says that the Government might not change its mind tomorrow and reverse certain policies? The credibility of the Government is rather low at the moment.
- Tree tenure is highly risky and very uncertain. This has in the final analysis not so much to do with the question who owns the trees or not but more with the question whether one can successfully defend his/her rights in case these rights are infringed upon. Security of Contract is at the moment very feeble.
- Due to the “open access” the financial price of an indigenous charcoal tree is virtually nil. Managing an asset that has no value does not seem make that much sense to a farmer. As indicated before management implies that cost have to be made. For the farmer it means spending time and effort and maybe even money into patrol & control, improved production techniques and so on. A farmer therefore needs to get a higher price for his produce. Current ex-farm prices are however based on an almost free tree due to the fact that virtually nobody pays tax. As farmers at the moment can not dictate prices a managed charcoal tree from a single farmer or a single village has to be sold for the price of a free tree. This means that the farmer who manages a charcoal tree is in effect subsidising his own tree. To argue that it will bring him benefits later on, is apart from the high risks and uncertainties involved (see previous arguments), a rather ludicrous proposition to a person who faces potential starvation and other disasters on an almost daily basis.
- The land underneath the trees is much more valuable than the trees itself. Forested areas on unreserved land are simply a land bank or savings account to be used if and when required. A hectare of maize is infinitely more worth than a hectare of charcoal (timber might compete). For a subsistence farmer the concept of a permanent natural woodland or forest estate is a rather alien idea, something that most non-farmers not seem to comprehend. Sustainable forest management based on the concept of a permanent or perpetual forest estate goes against this principle.
- There might even exist certain cultural disincentives to claim individual utilisation rights on charcoal trees. What certainly does exist is a certain aversion on the side of the individual producer to manage these natural trees on a communal or group basis. It is risky and uncertain as it involves all kinds of question regarding sharing of costs and benefits. The ultimate allegiance is towards the household rather than to the group or community but whether the producer is culturally, legally and politically allowed to undertake individual management is sometimes an open question.

All in all from a producers' point of view investing in sustainable charcoal production is under the prevailing circumstances a complete non-starter. Hence the decision to stick with the current exploitation system is rationale, profitable and the optimal way of producing charcoal.

2.2.2 Why traders never invested in marketing of sustainable charcoal

Traders consist in reality of three different groups of people, the producer-trader (bicycle operators with one to three bags at a time), local middlemen dealing in a few bags at a time, and the trader who deals in lorry loads. The Korogwe, Morogoro and Handeni town markets are almost exclusively supplied by the bicycle-trader. The Tanga and Dar Es Salaam markets, along the Segera – Chyalinze road are mainly supplied by the big traders and local middlemen.

Unlike producers and the bicycle operator and local middlemen who have to minimise their risks and avoid uncertainties, traders try to maximise their profits and are prepared to take risks.

For the trader there is no doubt about the profitability of the current system. Having not to worry about investments in fixed assets, and operating in a relatively low entrance business, i.e. minimal capital and technical requirements, the virtually uncontrolled and mostly illegal production and marketing system is the ultimate capitalistic dream. The situation almost resembles the Holy Grail of the total free market where prices are only determined by the laws of supply and demand without too much government interference.

When asking traders about income and expenditures they always, like every good businessman, tend to overstate expenditures and understate their income and profits. Nevertheless, the following statements are a fair reflection of income and expenditure figures for a trader in for example Mkata, on the Chalinze – Seger Road. Figures are under the assumption that all taxes are paid. (Figures for March 2001)

Item	Income (Tshs/per bag)	Expenditure (Tshs/per bag)
Wholesale Price Dar (weighted seasonal average)	4,000	
Producer Price Handeni		1,000
Average Transport Price (fluctuations due to load capacity and seasonal transport demands but almost always hired by the trader)		1,000
Taxes (Tshs 400 Cess in Handeni, Tshs 400 Royalty in Handeni and Tshs 100 market levy in Dar)		900
Loading and off loading		200
Various other costs (Business licence and charcoal registration fees, income tax, travelling to Tanga for TP, organising production, buying of bags, boarding and lodging in Handeni, cost of non-repayment of advances to farmers, storage & selling cost, etc.)		350 ¹
Income		300

If a trader manages to supply the Dar market with two 7-tonnes lorries per month (150 to 180/bags per lorry) the average monthly income is in the region of Tshs 100,000/month. It is certainly more than what a District Forest Officer earns but it is not such a big reward for the risks taken and time and effort spent. The classic picture of a trader who makes huge profits and who cheats farmers out of a good price is far from true. You do not become rich in dealing in charcoal.

What makes charcoal dealing extra attractive is that the above calculations are based on the assumption that the traders pays all the taxes. As indicated earlier on this is far from being the case. When their confidence was gained during discussions, traders interviewed in Handeni and Tanga openly admitted that in the absence of efficient control in the production areas, payments of Royalty and Cess has become in principle a voluntary tax. And even if they are unlucky to bump into control (like on the way to Dar at checkpoints) you can as one of them said, “negotiate your way through”.

Through the absence of efficient control and collusion between trader and controller, the trader is able to lower his Cess & Royalty obligations considerably, from Tshs 900 to maybe as low as Tshs

¹ This figure is a very rough estimate based on a fictitious trader from Dar Es Salaam whose turnover is 4,000 bags per year and stays 6 months/year in the production area to organise his trade. The licence and registration fees are already Tshs 35/bag. Travelling to and from Dar Es Salaam, staying in the Handeni area, going to Tanga for the Transport Permit, will approximately cost him Tshs 150/bag. Buying of bags, storage & selling cost in Dar, for example night watchmen, family members engaged in selling would add another Tshs 100/bag. With other miscellaneous expenses like income tax it all adds up to Tshs 350/bag. But if no fees and licences are being paid, income tax avoided and no storage is required, the figure of Tshs 350/bag will be lower.

300. (This includes the necessary collusion fees) Therefore if the trader in the above example is lucky he might be able to raise his income from Tshs 100,000 to Tshs 300,000 per month.

It is not a matter of passive avoidance of tax but an active one. The stories of foresters and traders alike are always similar and the Cess, Royalty and production figures corroborate these stories. The most often heard stories are:

- Loading at night and taking back roads to avoid detection
- Using Exchequer Receipt Vouchers (ERV) multiple times
- Obtaining Transit Passes (TPs) in Kibaha for Handeni Charcoal
- Carrying more bags than the ERV and TP states
- Offering and soliciting of bribes (depends who tells the story, the trader says it is soliciting, the other party claims it is offering), etc.

The trader claims that he is almost forced to avoid the taxes, as they are too high. But unlike with the producer who can not pay and is indeed forced to avoid payments, this argument has to be discarded. It is the maximisation of profit principle that makes the trader to automatically exploit the weaknesses in the system. You would be a bad businessman not to exploit it as paying taxes, whilst the others are not, makes your charcoal rather expensive and creates unfair competition through your own doing. One trader said that if he had to pay taxes, i.e. unlucky enough to get caught in Handeni, he was forced to sell his charcoal in the retail market, which has a higher margin, to recoup the extra costs. The drawback was that it took longer to sell and hence he was not able to return to Handeni as quickly as under normal circumstances. One way or the other it disturbs normal business practices but it is apparently accepted as part of the game.

The practice of tax avoidance on charcoal is so ingrained and widespread that a trader looks upon tax payments as an additional, and to a certain extent abnormal and unforeseen cost. Under these circumstances the idea of engaging themselves in marketing of sustainable charcoal and hence dealing in legal charcoal is from the traders' point of view a rather ludicrous proposition. Introduction of sustainable charcoal production and marketing means for a trader simply a tax increase (they consider paying a bribe to a civil servant as "indirect" taxation). Unless the trader can pass on such a tax increase to the consumer or the current trade is being made much more unprofitable through effective control, the trader will continue to follow the most profitable, i.e. current system.

2.2.3 And why is the State not investing in sustainable charcoal?

The financial cost - benefit analysis for the State or Public Sector of the current charcoal system is seemingly beyond any doubt negative. The Public Sector is losing enormous amounts of money and on top of that the forest estate in Handeni District (and elsewhere in Tanzania) is disappearing.

The Public Sector clearly wants to see a change in the current charcoal production and marketing system. Laws, rules and regulations are regularly updated to try to tighten the system and the policy changes over the last 5 years are certainly geared towards trying to achieve the goal of sustainable forest management, including sustainable charcoal production. So what inhibits the Public Sector from translating paper policies, laws, rules and regulations effectively and efficiently into reality?

Lack of funds is normally the first and most important reason that is being mentioned for the inability of Districts and FBD to implement laws and policies effectively and efficiently. But if it is a stated policy goal and if sustainable charcoal production and marketing is such a seemingly profitable proposition, then why does the State not make these funds available to the Districts and FBD to invest in sustainable charcoal. Why are donor funds required if as it seems the required investments are not big and are well within the reach of a District like Handeni? What is wrong?

1. Collusion between private sector and individual civil servants

Collusion, i.e. soliciting and accepting bribes for not enforcing laws, rules and regulations, severely undermines the efficient and effective implementation of the intentions of the Public Sector. It is certainly not the most important cause nor does it mean that each and every official dealing with the charcoal production and marketing is as they say "on the take". But it only takes a small number of individuals to render the system inefficient and ineffective. To a certain extent it is the Public Sector itself that causes this collusion to take place. Within the civil service bad behaviour is rarely punished and good behaviour is rarely rewarded. Confronted with low salaries, adverse working circumstances, few incentives and weak internal monitoring and evaluation, the temptation for an individual civil servant to succumb to collusion practises is very real.

2. Taxation, sharing and compliance

Faced with a problem of shortage of income due to the low compliance rate the Forest and Beekeeping Division (FBD) has opted for an increase of the level of Royalties rather than broaden its tax base (a higher compliance rate). A difference in opinion between Handeni District and FBD about sharing the little that was levied made Handeni District decide to raise the Cess on charcoal and timber to 100% of the Royalty rate. More than doubling the combined taxes compared to March 2000 has increased the overall tax (Royalty & Cess) but pushed the compliance rate down (and the collusion up) as traders in Handeni have to compete in Dar Es Salaam and Tanga with cheaper charcoal from other Regions. In a situation where the State is in a rather weak position, and that is certainly the case in a huge district like Handeni, raising taxes is a self-defeating exercise and counter productive.

3. Inefficient Collection and Monitoring System

Both the Cess and Royalty Collection System are cumbersome and too much open to abuse. Moreover, Royalties have to be passed on to Treasury before a percentage is returned to FBD Dar Es Salaam, who in turn passes a certain percentage to the Regional Representatives, who divides it again among the Districts, if ever. This system is a bone of contention for many of the stakeholders involved in the forest sector and the source of many conflicts.

4. Public Sector assuming sole responsibility for development

Although it is changing, the Public Sector still assumes in many instances that it is the sole responsible institution for development. Imposing taxes without real consultation and patrol, control solely carried out by civil servants, etc. The limitations of this attitude are being recognised and efforts to change are being initiated. The consequences of 30 years of top-down implementation, and frequent, not always consistent policy changes that were not always beneficial to the people, are still being felt within the private sector. The attitude of producers and traders alike in Handeni for example towards foresters and other relevant civil servants ranges from wariness to caution and distrust and from avoidance to sometimes open hostility. (Not on a personal level though) Soliciting payments, legal or illegal, from charcoal producers that simply can not pay is not helping the necessary attitude change among the private sector.

5. Subsidisation dilemma

As indicated earlier on the Public Sector can pay for the sustainable management of a bag of charcoal in a number of ways. One is to tax the charcoal producer or trader and allow them to pass the tax, partially or wholly, on to the consumer. Another one is to pay for the management cost through general non-forest taxes. Whichever tax system is opted for in the end life becomes more expensive for the average Tanzanian as they are asked, directly or indirectly to invest in the future production of charcoal. But can consumers really afford price increases? Politically speaking it is a very dicey proposition and it is much cheaper and safer to simply transfer the cost of the present charcoal production (soil erosion, etc., etc.) for future generations (and donors) to pay.

There is another even more far-reaching consequence than increased cost to consumers. Sustainable forest management (and charcoal production and marketing) implicitly means that the permanent conversion of the forest estate into agricultural and livestock areas will have to

be stopped. This would in turn force the agricultural sector to modernise through an increase of yields/Ha and this again would have major and profound social, economic, political, cultural and financial implications.

The crucial question is can Tanzania or Handeni District at this point of its development really afford to introduce sustainable charcoal production on a large scale? Nobody has ever done research into the real cost of sustainable forest management, only the (gross) benefits are being highlighted. But the answer to that question is most probably not. There are for example in Handeni villages where the forced introduction of sustainable charcoal production and marketing would certainly have disastrous consequences for the farmers involved. It has therefore to be accepted that these villages should be allowed to continue with what they are doing. A gradual introduction or an introduction in certain villages is most probably indeed possible and an attempt will be offered in Section 2.

All these reasons together and especially the last one, provide an answer to the question as to why the Public Sector is not supplying the relevant institutions with more inputs although management of these production forests seems to give net benefits, environmental as well as financial. Although it might be a profitable proposition for the forestry sector and the sector might even become a net contributor to the Treasury, the overall costs to society might be too high for Tanzania at this point of its development. Moreover there are other sectors, health, education, etc. which have a higher priority than forests and their sustainable management. Instead of the forestry sector being able to charge society the real price for its efforts, it is used instead to subsidise other sectors. (Cheap energy, land, timber, water, electricity, etc., etc.)

And even if Tanzania had the resources to invest at the moment, all the other factors makes that the forestry sector will not realise its full potential. Drastic changes need to be introduced to overcome these problems.

2.2.4 The current thinking about change

The current thinking about change moves strongly into the direction of community involvement in the management and even privatisation of part of the forest estate (plantations).

Relevant for the charcoal production and marketing on public and village lands are the ideas of setting aside village forest land as village land forest reserves if and when the village is willing to do so and hand over control and management and Royalty Collection to the villagers. In doing so they will be able to benefit directly from the proceeds from Royalty Collection by retaining part of it themselves.

There are however a number of questions and inherent weaknesses in these proposals:

- The trade is not involved. As long if it is not part and parcel of proposals for management they remain outsiders and they will certainly probe for weak spots to exploit. And any system has its weak spots.
- Transferring control has to mean offering security of contract. Giving villagers the control without the means to defend themselves against infringements of their legal rights by third parties, including the Village, District and national Authorities makes it an extremely risky proposition for the villagers. How can security of contract be strengthened?
- Transferring management responsibilities to villagers means an additional cost. How do they recoup them? Higher prices for charcoal?
- Compared to the current situation the sharing of Royalties between FBD and the village is putting yet another additional cost which they do not have at the moment as the vast majority of the production is illegal and therefore not taxed. Why should villagers tax themselves?
- The current collusion between trade and foresters will multiply tremendously. As there is no incentive for villagers to tax themselves and no reason to believe that village officials are less inclined to collude than other levels of the public sector the Consultant is of the opinion that the compliance rates will even drop further. Apart from the collusion factor village officials are even

more prone to pressures from their own people not to tax than the other levels. Who is supposed to monitor and control village tax collectors?

- What is the role of the District? Will they continue to try to levy a separate Cess on production level? Given the current thinking and attitude this might well be the case and would certainly have disastrous consequences. Who ensures that the district is not going the use charcoal (and timber) production as the proverbial milking cow
- What about the so-called reserved trees? Who owns them?
- What about the forested areas in villages who do not wish to establish village land forest reserves but want to continue what they are doing right now with the forest? It would not be surprising if more than 90% of all the villages in Tanzania would not opt for a forest reserve on village land. Why should they?
- Who trains villagers in the management techniques?

There are not only many questions and inherent weaknesses in the current thinking but most important of all is that the thinking is based on the wrong footing. The thinking assumes that once the new laws, policies and approaches are in place and people have been sufficiently made aware that they will automatically change to a more sustainable charcoal production and marketing system. But sustainable charcoal production and marketing is just an idea, nothing more and nothing less and changing the rules and policies does not necessarily mean that people are going to buy the idea.² The idea needs to be sold.

2.2.5 *Selling Sustainable Charcoal production and Marketing*

Whatever the technical content or definition of sustainable charcoal production, the bottom line is that the change from the current charcoal production system to a new production system is based on a change in attitude and ultimately human behaviour. Primary stakeholder groups, i.e. producers, traders and consumers, have to change their production and consumption patterns and techniques and attitude towards charcoal in particular and energy use in general.

The reason why these primary stakeholder groups have to change is rather simple. It is the State or Administration of Tanzania, in conjunction with the donor community and other secondary stakeholder groups that wishes them to do so. This wish to change derives from the fact that these secondary stakeholder groups deem the current charcoal production system extremely detrimental to the existing forest estate in particular and the national and global environment in general. Although it is being scientifically justified as a necessary change or development and the only viable solution to the problems connected with the existing production system, it remains for the time being merely an idea from a few stakeholder groups.

From the point of view of the State or Administration introducing the idea of sustainable charcoal production and marketing means nothing more than *the nebulous affair of trying to guide and thus anticipate human behaviour.*

An Administration that is faced with the question how to change or guide people's attitude and behaviour in such a way that the proposed changes in the charcoal production system will be taken up by the primary stakeholders, i.e. producers, traders and consumers alike, has basically two options.

The first one is to force people to change their attitude and behaviour or management by control. The second one is to try to convince the people with valid arguments that the new charcoal

² Sustainable forest management, of which sustainable charcoal production is one of the elements, is in terms of development neither an absolute truth nor the only alternative. Clearing the majority of the natural woodlands and ultimately replacing parts of these woodlands with privately owned planted trees is as much a development as sustainable forest management. That the stakeholder groups in favour of sustainable forest management consider clearance of these woodlands a disastrous or negative development and hence think that their ideas are the only way forward is neither here nor there. Sustainable forest management remains an idea, and only one of the possible development avenues.

production system is better than the current charcoal production system or management by consent. Which option to choose depends on how weak or strong the Administration is.

A major indicator of how weak or strong an Administration is, is the degree to which the Administration can force the majority of people to pay tax. In order to have efficient and effective management of scarce resources or public assets like security, water, health, forests, etc., an Administration requires income or payments from the private to the public sector, i.e. taxes. If it is not in a position to solicit these taxes from its citizens than the efficient and effective management of these scarce resources or public assets becomes virtually impossible and hence development in whichever definition used will be extremely difficult to initiate.

If the State or Administration is strong it could get away with forcing people to change their behaviour to a certain extent and for some time. Changes will take place. There are numerous examples in history where the State forced people to change and hence development took place. Africa during the colonial period is but one of the many examples. Another example is the Soviet Union. But in the end even the strongest State is not in a position to plan and determine people's behaviour. At some point even a strong State has to involve its people in the debate about which changes are "good" and which are "bad", or in other words how the future of a country should look like.

A weak Administration on the other hand can never force its own people to adopt ideas, goals and objectives they do not see the relevance of it or worse do not agree to. Tanzania is a country where the Administration is weak.³

The people in Tanzania are able to simply ignore to a greater extent most of the things the Administration wants or does or in other words are virtually not accountable anymore to its own Government. The Administration needs the people to survive but the people hardly need the Administration to survive. In such a situation the Administration has to rely on people's participation. *In Tanzania people's participation is a pre-condition for any change and hence development to take place.* If Tanzania wishes to change the current charcoal production system it can only do so through a participatory process.

The notion that changes can only take place based on participatory approaches is recognised and understood by the State of Tanzania (and the donors). Every new Law, policy, development project and program, etc. requires "participatory approaches" and documents and papers are jam-packed with phrases like "participatory rural appraisal, people's needs, bottom-up planning, etc., etc. Although "participation" became a popular notion some 10 years ago and is seemingly integrated in policies, laws, development projects and programs, the impact of "participation" in terms of development as defined above, is still minor.⁴

³ Tanzania is not in a position to force the majority of the people to pay tax. Its tax base is extremely small and covers mainly the formal, urban based, salaried economic sector. More than 90% of the people in Tanzania are either not covered and/or avoid paying many of the taxes they are supposed to pay. Two examples highlight this problem. It is estimated that the Forest and Bee Keeping Division (FBD) can not collect 95% of the Royalties on forest products and usage. It was estimated in 1996 that FBD lost approximately US\$ 50 million in Royalties not collected. (H. Buys & S. Mariki, Royalty Collection & Monitoring, 1997). It was estimated that Mwanza City Council in 1999 only managed to collect 17% of all the City Levies. (Danish Embassy, 2000)

A weak internal organisational structure of the Administration that has given rise to mismanagement, embezzlement and corruption of the few taxes collected are compounding the lack of money. As a result the management of scarce resources or public assets is extremely inefficient and ineffective and hence is seriously hampering development, in whichever definition used.

⁴ As long as the majority of people do not pay tax and hence have no direct stake in how the State manages the scarce resources or public assets on behalf of its people and as long as the State does not have to justify to its own people how monies are being spent, participation or non-participation does not make a difference. Tanzania is basically only accountable to the donor community, as 90% of the money spent by the Administration is overseas taxpayer money and not Tanzanian taxpayer money. The Administration in Tanzania is rightfully more concerned about what the donor community thinks than what its own citizens think about the management of these scarce resources or public assets.

The importance of “participation” warrants a closer look at its definition and implications.

What is Participation?

The dictionary definition of “participation” is to “have a share in, or take a part in.” This definition implies three things:

- Participation demands that a responsibility is taken and that accountability exists.
- Participation is always a two way responsibility and accountability
- Participation is an investment in terms of time, labour and sometimes money and as with any investment benefits are expected. Not only that the benefits should accrue to the investor but also that the expected benefits surpass the cost. Furthermore the investor requires security of contract. This means that the investor is allowed to defend the legal investment against any infringement of third parties, even the Administration.⁵

Can Participation be guaranteed?

Participation can never be guaranteed nor be forced upon. One can at best promote participation, i.e. trying to design an intervention in such a way that it will influence people’s decision to participate (invest, take responsibility and be accountable) or not. In the long-run beneficiaries will participate only if it is in their best interest to do so. If people do not participate it simply means that it is not beneficial to them.

How can Participation be promoted?

To promote participation is to promote accountability, responsibility, transparency, profitability, flexibility and credibility. In more detail it requires:

First: A realisation that participation has less to do with methods and techniques, but more to do with attitude, commitment, patience and perseverance all parties involved (donors, host country administration, project managers and advisers and local leaders) to make it work.

Second: A change in the attitude of the beneficiary from a passive recipient of services and aid to active partners in development. Beneficiaries must be encouraged to define their own problems, to initiate change, to take responsibility for change, to be accountable for the implementation of solutions and to provide feedback concerning the success of the intervention.

Third: Administrators have to change from the traditional top-down to a more bottom-up attitude and approach. They have to be prepared to genuinely discuss and negotiate with the beneficiaries concerning a given intervention. The beneficiaries should clearly see the administration as approachable and accountable. Development of a downward accountability mechanism is essential.

Fourth: Systematic dispersal of information regarding the how, when, where,

⁵ Security of Contract is closely linked to the issue of the credibility of the Administration. How secure are property rights vis-à-vis the Courts of Law and Government Policies. Will the Government stick to its promises? Are courts really impartial? Can contracts be enforced? Given the past track record of the Administration in Tanzania the credibility of the Administration amongst its own people is still rather low and security of contract rather weak. Moreover the profitable disposal of the benefits of investments by private sector was a problematic issue, especially before 1990. When people want to judge what the Government intends to do in future they base such a judgement on past experiences. If these past experiences were negative, they would not for some time believe what is being said. Only if the Government implements a policy in a consistent manner for some time will people believe it and subsequently start changing their behaviour. This is called people’s “rationale expectations” and one of the economic theories (developed by Lucas, for which he received the Nobel Price in 1996) that form the corner stone of many Governments’ economic and financial policies.

how much, who, why, etc. of the intervention, including proposed expenditure figures, costs and benefits to the beneficiaries, expected risks, rights, obligations and sanctions. In other words there should exist complete transparency towards the beneficiaries.

Fifth: Any intervention should find a balance between quick and visible short-term benefits for the individual households (poverty alleviation) and long-term benefits for the society as a whole. It must minimise beneficiaries' risks and uncertainties. Benefits should accrue to the ones who make the investments and surpass the cost of investments. But above all it must be realised by Administrators and Donors alike that people's participation means that costs or sacrifices have to be made by the ultimate beneficiaries. And beneficiaries are like any other human being: they want the biggest conceivable benefits in the shortest time possible against the least cost. Participation is in the final analysis a cost-benefit issue.

Sixth: It follows therefore that each intervention, including objectives, outputs, activities & inputs, should provide for a process of successive approximation and continuous redesign.

One can summarise the above as follows:

Sustainable charcoal production and marketing is an idea that, as far as the Administration and some other stakeholders is concerned, has more net benefits for them than the current charcoal production and marketing. Subsequently they want the primary stakeholders in this production and marketing process to change their attitude and behaviour. But the Administration is not in a position to force these primary stakeholders to change by introducing a more enabling legal framework and/or to rely on management by control. The idea still needs to be sold as the primary producers hold the ultimate power to accept or reject the idea, whether it is Law or not. How to sell the idea is the subject of Section 2.

SECTION 2: PROPOSAL FOR A SUSTAINABLE CHARCOAL PRODUCTION AND MARKETING SYSTEM IN HANDENI DISTRICT

3. PRECONDITIONS FOR SELLING THE IDEA

Before starting the process of selling the idea of sustainable charcoal production and marketing to primary stakeholder groups, FBD and Handeni District Council need to realise a number of implications of and preconditions for the “selling process”.

1. FBD and the Handeni District Council, being representative institutions of the Administration, need to be prepared to *genuinely discuss and negotiate* with producers and traders their ideas about changing the current charcoal production and marketing system.

As argued in the previous Chapters FBD and the Handeni District Council are, as far as charcoal on public and village land is concerned, simply not in a position to demand anything from traders and producers based on the notion of management by control. Both institutions have to realise that they have virtually no control at present and hence have no real power to force traders and producers to do what the two institutions want them to do. Whereas the de jure power lies with FBD and Handeni District Council, de facto power lies with the producers and traders. Subsequently FBD and Handeni District Council are forced to discuss and negotiate from a position of weakness.

This weak position means amongst others that they have to be prepared to discuss and negotiate about taxation (Cess and Royalty) levels and an appropriate tax system. To insist that producers and/or traders have to follow the current system and have to pay the current taxes, or in other words make taxation a non-negotiable issue, is a folly.⁶

It also means that the idea of Royalty “sharing” between FBD and producers/traders should not be entertained and enter the discussions and negotiations as a proposal. FBD and Handeni District Council have to accept the fact that in a situation where 98% of the charcoal is not being taxed, a “sharing” proposal is nothing else than adding a cost to producers and/or traders they do not have at the moment. Why should anybody voluntarily agree to an additional production cost? This does not mean that producers and/or traders should not pay tax. They have to pay for a variety of reasons but FBD and Handeni District Council have to make crystal clear what producers and/or traders get in return for paying an agreed upon tax on charcoal.

2. At present the already weak position of FBD and Handeni District Council is further eroded by the fact that they do not act in unison. Producers and traders exploit the fact that the Catchment Forest Office and the District Natural Resource Office, under which the District Forest Officer resorts, hardly collaborate with each other and squabble over who is the ultimate responsible institution to collect Royalties. If FBD and Handeni District Council are to successfully discuss and negotiate over the introduction of sustainable charcoal production and marketing with the primary stakeholders, they first and foremost have to settle their own differences and agree on a common position.
3. The other issue that erodes the position of FBD and Handeni District Council vis-à-vis traders and producers even further is corruption. Although no hard legal evidence exists, every trader

⁶ A folly can be defined as “the pursuit of a policy by the Government contrary to its own interest”. A folly is a self-deception and based on wooden-headedness. It consists in assessing a situation in terms of preconceived fixed notions while ignoring or rejecting contrary signs. It is acting according to wish while not allowing oneself to be deflected by the facts. (Barbara W. Tuchman, *The March of Folly*, 1984, page 5) The current policy regarding Royalty Collection and Monitoring is an extreme good example of a folly. To continue with it is even a greater folly. FBD and Handeni District Council have to face the facts or rather reality and change their preconceived fixed notion that people will pay Royalty and Cess just because there exists a (by)law or that people will engage in sustainable charcoal production and marketing just because the policy and Law says so.

and producer admits that soliciting and accepting bribes is a known and integral feature of the current charcoal production and marketing system in Handeni District. Whatever the two institutions want to do or change is being rendered rather ineffective by corruption, even if it only involves a few and a tiny minority of the civil servants. As long as corruption is not dealt with efficiently and effectively, traders and producers will be able to exploit every single weakness in whichever rule, regulation or law and their implementation to their own advantage and at a loss to the Government.

4. The discussions and negotiations have to centre on the financial cost-benefit of the current system versus the financial cost-benefit of the new system. This requires the recognition by FBD and Handeni District Council that the current charcoal production and marketing system has its merits for producers, traders and consumers and, as the charcoal study has shown, is profitable for them. If they are to convince the traders and producers that sustainable charcoal production is a better system than the present one, then it is up to FBD and Handeni District Council to show that the new system is at least equally profitable in the short and medium term. This requires that FBD and Handeni District Council have to table realistic and concrete, measurable and verifiable cost and benefits of the new system. Arguments like “that it is better for the environment” or “cutting the forests makes you poorer in the end” or “the current system promotes soil erosion, shortages of water”, etc. should not be used. These arguments are too vague, the likely consequences too far away in the future and present a doomsday scenario that is hardly a good basis for a positive dialogue.
5. The selling argument of the new idea is to be based on short-term and medium-term poverty alleviation not on long-term environmental benefits. And poverty alleviation arguments require very concrete facts and figures and need to be very transparent. Traders and producers are rational human beings and do know intuitively that to manage a forest, which they are not doing right now will bring additional cost. FBD and Handeni District Council will have to present them with answers to the following questions:
 - What does sustainable forest management entail in terms of techniques and what are the cost in terms of time, labour and money for the producers and traders? (Amongst others for example paying an agreed upon tax (Cess + Royalties) and possibly limiting production to a sustainable harvesting level).
 - Who has to pay for what, when, how and where?
 - What exactly are the concrete benefits for producers and traders (Amongst others for example higher producer prices) To who do these benefits accrue, where, when and how?
 - What are the risks and uncertainties involved? In other words what guarantees does FBD and Handeni District Council offer in terms of security of contract?
 - What will be the responsibility and rights of traders, producers, FBD and Handeni District Council under a sustainable charcoal production and marketing agreement? Can they be legally enforced? What is the role of the Ward and Village Government?
6. Apart from providing answers to these questions FBD and Handeni District Council have to provide traders and producers with the relevant legal information: what does the current forest policy and Forest Ordinance say regarding tree cutting of reserved and unreserved trees and charcoal production on unreserved lands? What is the current land policy and Land Act saying? What is the legal power of the District and FBD vis-à-vis each other and the private sector? What is the legal power of the private sector vis-à-vis the public sector? It does not suffice to merely translate relevant laws, rules and regulations into Kiswahili, people need to be properly educated through an awareness campaign that should partially precede the discussion and negotiation process.
7. The issue of the forest management plan warrants a separate remark. It is a folly to insist on the classical or traditional management plan development approach. These traditional management plans are either geared towards timber production or conservation management. Both forms of management have a relative high added value per Hectare and require a relative high level of technical expertise. But woodlands for charcoal production have a very low added

value and villagers do not have and need a high level of knowledge and expertise to manage a piece of forest for sustainable charcoal production.⁷

Lastly, traditional forest management plans are implicitly based on the notion of a permanent forest estate, and for that matter almost always involves reserved land. The notion of the permanent forest estate for charcoal production on public and village lands by local community members who do not have the concept of a permanent forest estate is bound to be troublesome. Rural communities have always treated forested areas as a “land bank” not as a forest as such. Utilising this land bank includes changing its land use if and when required.⁸ Management plans for charcoal production need to be extremely simple and flexible and cheap and quick to produce and have to take into consideration the existing and future demands for agriculture and livestock development. (See Annex 1 for an example)

8. The idea that under the new proposed Forest Act the handing over of forests on unreserved lands to local communities would enable the introduction of sustainable charcoal production and marketing, is seriously flawed and should not be used as an argument or “carrot” during the discussions and negotiations.

First of all the local “community” does not exist. It is a grouping of individual households that will collaborate with each other on a temporary basis if and when this collaboration is beneficial to the household. The ultimate allegiance is to the household and not to the community. To base interventions on a very fluid organisation that is rife with infighting, back stabbing and all other human shortcomings has severe deficiencies. To manage a natural resources asset communally has proven to be a nightmare in many places and something community members do not like for obvious reasons.

Secondly, to have the Village Government control such forests on behalf of its people does not work either. The Village Governments display the same weaknesses as the District and National Government. Insufficient transparency, accountability and credibility make people in many villages very suspicious of Village Governments and reluctant to “participate”.

Thirdly, handing over control of a public asset or scarce resource from a public sector manager to what basically is a private sector manager (the “community”) is bound to create problems. The public sector manager has a more long-term national economic outlook whilst the private sector manager has a more short-term individual/household financial outlook. And these differences in outlook are bound to clash.⁹

⁷ A typical Hectare of Woodland with an M.A.I. of 2 M³ available for charcoal production would bring a producer in Handeni a gross profit, excluding labour cost, of between Tshs 10,000 and Tshs 15,000 per annum. To spend that same amount or even more per Hectare on aerial photography, classic inventory, boundary clearing, enrichment planting, patrol and control, etc., etc. makes clearly no sense. The fact that the economic value of such a Hectare is normally calculated at 20 times or more the financial value and therefore should justify these classic management activities is a very weak argument. Economic value is a book value, the value of the management cost are financial and real and have to be paid up front. To do it by the book means simply that sustainable charcoal production will have to be financially subsidised. Who wants to do that?

⁸ Even if a forested area would be converted into agriculture and grazing areas in let us say 10 years time, sustainable charcoal production can still be practised during the interim period and has its value. Unlike the current system the sustainable production and marketing system will add an absolute value to trees (which they do not have right now) and a relative value to the land underneath. In other words sustainable charcoal production will introduce a real cost factor to the conversion process in 10 years time and maybe to such an extent that natural woodland farming becomes more profitable than maize farming. But as this is not known one should not insist at present on natural woodland farming in perpetuity. The option should be kept open. This reasoning might be difficult for a forester to accept but is part of the necessary attitude change of foresters if they want to sell their idea of sustainable charcoal production.

⁹ The best example is the United States Bureau of Land Management that is mandated “to manage public land (i.e. unreserved land) on behalf of the American people for maximum profits in perpetuity.” (Article 1) Especially in the Mid West where the Bureau leases most of these public lands out to cattle and sheep farmers, conflicts over management rules between farmers and the Bureau are widespread. These conflicts centre on individual short-term financial profits of farmers versus the maximum profits in perpetuity for the Nation as a whole. Farmers claim that the management rules of the Bureau are too costly and hence are not

Moreover, the reality on the ground at the moment is that local communities are treating these forests on public and village lands already with a private sector management outlook. Whatever the current or future legal status of these forests might be has had little or no bearing on what they have been doing so far or what they will do with these forests in future. Handing over control to villages will merely legalise or rather confirm an already existing practice and in fact reinforce this private sector outlook rather than weaken it.

The management of such an asset should be given to a (legal) association of some community members that have common interests. They should be answerable to the community as a whole through clearly defined management conditions. And if FBD and Handeni District Council want to sell the idea of sustainable charcoal production in these village forests it should use private sector arguments and not public sector arguments. The role FBD and Handeni District Council have to play is that of advisors that have to accept the fact that their Clients, the “communities”, can take their advice or simply leave it.

4. THE PROCESS OF SELLING THE IDEA

Selling the idea of sustainable charcoal production and marketing to customers (“beneficiaries” in development speak) who are suspicious and shrewd and, especially charcoal producers, who are not in a position to experiment and want to minimise risks and avoid uncertainties, requires a careful approach. The selling or discussion and negotiation process consists of a number of logical steps that could take up to a year or more and success can not be guaranteed beforehand. Nevertheless it needs to be tried.

The following steps in the process are anticipated.

Step 1: The preparations

FBD (Catchment Forest Project) and Handeni District Council have to settle their differences and agree upon a unified tax (Cess and Royalty) collection & monitoring system and how to collaborate effectively and efficiently in future. Furthermore both parties have to agree on a common stance and approach during the discussions and negotiations and investigate ways and means how to tackle corruption in their own ranks. Lastly and perhaps most importantly both public sector institutions have to evaluate for themselves whether they really want to enter into genuine discussions and negotiations or not.

Step 2: Informing the General Public

After having settled their differences, wanting to enter the negotiation process and having agreed upon a common stance, the Public Sector “Party” designs and distributes information leaflets in all villages along the Segera – Chalinze road. These information leaflets should contain a brief summary of the “Idea” and an invitation for a round table workshop or conference with village government representatives, producers and traders. The maximum number of people attending should 30, with the majority coming from the traders and producers. The location for this conference should not be in Handeni town but in one of the more centrally located villages along the Segera – Chalinze road. This dissemination process should take at least one month, preferably two, as people have to be given the time to read, discuss and digest the information.

profitable for them. Environmental lobby groups claim that the Bureau’s rules and regulations are harming the national benefits in perpetuity.

Step 3: A preparatory Conference

During the conference the Public Sector “Party” will outline the aim of the discussion and negotiation process and will distribute the first part of the Proposal, which should have been translated into Kiswahili, contained in the Debriefing Note hereafter. For producers and traders to be eligible to take part in the discussions and negotiations two pre-conditions have to be put forward:

- Traders have to register a traders association with Handeni District Council. The maximum numbers of traders allowed to operate in the villages along the highway is put at 20 or 30. The District will announce that non-registered traders (non-association members) will not be allowed to operate anymore in Handeni in the near future ¹⁰
- Charcoal producers have to organise themselves in village production associations with flexible membership conditions. ¹¹ Only the representatives of the traders and different producer associations will be invited for the actual negotiation process.

To make sure that what has been discussed during the conference will reach the majority of the ordinary villagers along the Highway, the Public Sector “party” will have to produce and distribute pamphlets, including legal information, and apply other extension and awareness techniques.¹²

An independent or impartial moderator assisted by a facilitator should head the conference. These two people should continue to play the same roles during the subsequent negotiation and discussion process.

Step 4: The Discussions can begin

FBD, The Council and representatives of Village Governments and the newly formed producers and traders Associations will gather again this time in Handeni to discuss the analysis of the current trade based on the first segment of the Debriefing Note. The aim is to see whether the Consultant has indeed covered all the relevant points of the current system and for the participants to get to know each other. At the end of this meeting, which could last two days, the participants have to agree on a joint document that contains the agreed upon analysis, the problems, weaknesses and strengths, of the current system. Only after having passed the joint document, the actual proposal for the new system should be handed out for discussions during follow-up meetings.

The local representatives are obliged to keep their constituents informed and FBD and Council employees should monitor this information process. ¹³

¹⁰ Forming a Traders Association with exclusive trading rights has several advantages, both for the public sector as for the traders themselves. For traders it means that they can monopolise the trade and keep unwanted and unfair competition out. For the public sector it means a much better grip on the trade side. Such a move however requires most probably a new District Council bylaw.

¹¹ These Associations should not be registered under the Co-operative Act as (pre)co-operative groups but as business Associations under the Business & Company Act. It is much faster, can be done by any Lawyer and creates a solid legal entity that can enter into contracts, be sued if necessary, etc., etc.

The Production Associations are not meant to promote co-operation among producers. It has been tried before and failed for a variety of reasons. The aim of forming these Production Associations is more to create a legal entity that will be allowed to monopolise charcoal production within a designated area and could sue and be sued for breach of Contract. Whether the Association is disorganised or not does not matter, if it fails to adhere to the rules of the game the Contract can be nullified and the production rights go to another Association.

¹² The importance of disseminating information to all people concerned can not be stressed enough. Development projects and Government Institutions have an in-built tendency to marginalise the downward information flow and at best give some information to Village Governments and/or special “development” committees. But they in turn hardly ever inform the people in a proper manner, if at all. How can people make a decision to participate or not if they do not even know the basics? Saying yes and voting no with their feet is one of the results of a bad information flow.

¹³ The District Council should empower one or two of its employees to negotiate on behalf of the

Step 5: the long road ahead

With the actual proposal discussed with their respective constituencies the meeting reconvenes and starts trying to hammer out an agreement for a new more sustainable charcoal production and marketing system. This might take 5 meetings, 10 or even 20 and could last for three months, eight or twelve, nobody can tell. It might end up in an agreement or not. Some villages might opt out and others continue.

During this process it might be necessary to conduct further field investigations into the total forested area in a village, M.A.I. estimates, and other necessary information. These investigations should take an appraisal approach; “quick and dirty” and based on the premise that you have to know what you do not have to know.

5. THE PROPOSAL

There are a number of underlying principles upon which the proposal for the introduction of sustainable charcoal production and marketing in Handeni is based. These are:

- Adding a financial value to trees on public and village lands
- Raising the producer price for sustainable charcoal
- Minimising collusion, corruption and general avoidance of agreed upon rules and regulations.

The proposed system and all its components, except the special Handeni Charcoal Bag (see below) only apply to unreserved land, be this called open, public or village lands. Local Authority and Territorial Forest Reserves are excluded from the proposal with the exception of the special Handeni Charcoal Bag.

- Producers, traders, Handeni District Council and FBD Dar Es Salaam have to discuss the proposal jointly and negotiate an appropriate, workable and affordable agreement that parties can adhere to. The agreement should be a legal contract between private sector (traders and producers) and public sector (national, district, ward and village) that gives explicit provisions for legal redress in case of non-compliance or infringements of rights. These provisions could be relevant existing Rules and Regulations, Bylaws and any other new provision deemed necessary.
- For ease of administering the tax collection the Royalties and Cess should be amalgamated into one payment at one point in Handeni District, situated at the District Council Offices and done by the District Forest Officer. Ward and Village level should not be involved in any tax collection pertaining to charcoal production.
- The level of the combined Royalty and Cess collection should not exceed Tshs 500 per bag of charcoal. Whatever part of the Tshs 500 is designated as Cess or Royalty and whether Royalties should be shared between the District and FBD is subject to negotiations and agreement between the two partners.
- The combined Royalty and Cess tax is only to be levied at the level of the traders on behalf of producers.
- Handeni District Council is to prepay the Royalties due to FBD through the buying from FBD by the District Council of special Handeni Charcoal Bags.
- Traders have to buy these bags from Handeni District Council for Tshs 500 + cost of the bag. Upon buying the required number of bags the trader receives the ERV and TPs with the right to

Council. The same applies to FBD. These negotiators are obliged to report back at regular intervals to FBD Dar Es Salaam and the full Council Meeting as the negotiation process has to have the political backing of the responsible institutions at all time.

use these bags for a month. Charcoal that is found in any other bag in Handeni District is automatically illegal. (See Chapter 3.2 for detailed procedures of the bag system)

- Producers are not to be taxed on charcoal production. Each and every household pays an annual sustainability tax of Tshs 500 to the Village Government in villages with managed production that will be used for covering management costs. This gives each household the right to produce charcoal. Villages where no such managed production is agreed upon and implemented the Village Government will levy a sustainability tax of Tshs 3,000 per household per year. (See Chapter 3.2 for details of the sustainability tax procedures.)
- Traders agree to enter into delivery contracts with specific Villages on a monthly basis. Copies of these contracts have to be submitted when buying the special Handeni Charcoal bags from Handeni District Council. Only the number of bags indicated in the delivery contracts can be bought from the Council. Copies of contracts and ERVs have to be submitted by the Council to FBD on a monthly basis.
- In Villages with managed production the trader agrees to pay producers an extra Tshs 400 per bag over and above the prevailing seasonal price to the producer. In villages without managed production the trader does not have to pay the extra Tshs 400. The trader has the right to revoke the extra Tshs 400 per bag if he has proof that the Village with managed production is not adhering to its agreed upon management plan.
- The District Council can levy a punishment tax of Tshs 50,000 on villages that do not adhere to their agreed upon management plans.
- Registration of traders allowed to trade charcoal in Handeni District will be done in Handeni District. The registration fees or any part thereof agreed by FBD have to be remitted by the Council to FBD.
- The District is to limit the number of traders allowed to deal in Handeni District to a maximum of 30 only.
- FBD is to waive or hand over all its rights, including the reserved tree species provisions to those villages that have either agreed upon management plans for designated village forest areas and to those villages having designated village land forest reserves. Management plans are to be based on harvesting coups and adhere to sound silvicultural practises related to the production of charcoal. In case the management plans are not adhered to these plans FBD and/or the Handeni District Council can revoke rights and provisions granted to the villages.
- Management plans for designated forested areas and village land forest reserves have to be approved by the District Forest Officer. These management plans should not exceed 3 pages and reviewed annually at the end of the rain season. The District Forest Officer or one of his subordinates is contractually obliged to assist the village in drawing up such plans and annually review them together with the village. (See Chapter 3.2 for detailed information about these plans)
- Charcoal producers are obliged to form a business association being a recognised legal entity independent from village government. Membership should be flexible and open, allowing for people's need to produce charcoal if and when required as long as charcoal production does not exceed sustainable levels.
- Any District Official or Civil Servant authorised to seize illegal charcoal in Handeni District will be rewarded 10% of the value of the confiscated charcoal based on the sales value of charcoal confiscated.
- Any trader found with illegal charcoal will have the licence revoked and banned from trading in Handeni District for at least two years.

- The means of transport (truck, bicycle, bus, tanker or any other motorised vehicle) carrying illegal charcoal will be impounded, confiscated and sold in accordance with forest rules and regulations.
- Civil servants soliciting for or accepting bribes will be punished to the maximum legal limit.
- Apart from the special Handeni Charcoal Bag, the other elements of the system should be piloted in villages along the Segera – Chalinze road.

3.2 How the System Works

All the aforesaid points are connected in a logical manner and the best way to explain this logic is to describe the process by way of an example.

1. The Trader

After having heard the announcements and read the advertisements in the news papers from the Handeni District Council inviting interested charcoal dealers to discuss and negotiate upon a new system of charcoal production and marketing, trader Juma from Dar Es Salaam (who deals already in Handeni) decided to take part in the negotiations. After all parties signed an agreement he registered in Handeni District at the council offices as a charcoal dealer and paid the Tshs 50,000 registration fee.

Trader Juma is required to enter into delivery agreements with one or more villages that are part of the designated pilot area. He used to earn on average about Tshs 300,000/month. (450 bags) Before he can obtain an ERV and the TPs from Handeni District Council Offices he has to produce the necessary delivery contracts with the villages he wants to deal with. He has in principle two choices: to deal with a village with an approved management plan, which means he has to pay an extra Tshs 400 per bag or deal with a village without such a plan. Unfortunately for Juma the discriminatory Village Council tax on sustainability of Tshs 500 versus Tshs 3,000 per producer per year has made producers in all villages decide to make a management plan (at least on paper). Therefore he has no choice. It is all the same. He makes delivery contracts with charcoal associations in two villages for 225 bags each.

After signing he goes with the copies to the Handeni District Council and requests for 150 bags for that month. He would normally use them three times but could “cheat” by using them even four or maybe five times. Whether he uses them two, three or five times, for the Council it is all the same. As long as he pays Tshs 500 per bag (Tshs 400 tax + Tshs 100 for the bag) the Council is satisfied. (The Council bought a total of 4,000 bags from FBD for that month. If the Council does not buy bags for one reason or the other no charcoal can be traded in Handeni and Juma is legally entitled through the contract to receive compensation from the Council for loss of income). Having paid 150 x Tshs 500 = Tshs 75,000 he receives his ERV and a number of TPs. Both are valid for the whole month and he will fill in the necessary blanks on the TPs if and when needed. With these forms he receives 150 special Handeni Charcoal bags. They are made out of plastic and imprinted with “Handeni Charcoal Bag”, the month and year in bright red, being the colour for that month.

He delivers the bags to the two villages and this being the dry season with a lot of charcoal produced (all within the sustainable management plan, he made sure he checked it because he does not have to pay the premium if there is no plan) he manages to use the bags four times. So what does Juma earn compared to the old system? The example follows the calculations on page 8.

Bag use	Variable cost (tax) (Tshs/bag)	Fixed cost (Tshs/bag)	Selling Price/bag	Income (Tshs/bag)
1	500	2,850	3,500	150
2	250	2,850	3,500	400
3	167	2,850	3,500	483
4	125	2,850	3,500	525

He earns a total of Tshs 525 per bag. In the good old bad days he earned Tshs 900 if he was really lucky and Tshs 400 if he was really unlucky. He now however does not have to move during the night anymore and have the hassle at the different checkpoints on the way or spend time on endless negotiations and has a more stable income. Although he can still “cheat” the system if he likes or need but it is all above board.

And the Council and FBD? They would on average catch 2% of Juma's load or in this case 12 bags. At Tshs 800 per bag it would have earned them Tshs 9,600. Now however they earned Tshs 75,000 or an increase of 800%. And what about the producers? They earned Tshs 400 X 600 = Tshs 24,000 more.

Compared to the old system, the increase in the income of the FBD and the Council and producers, a total of Tshs 99,000, comes from two sources, partially from Juma and partially from the bribes he had to pay to several civil servants.

Would Juma be tempted to cheat by using illegal charcoal bags? If he is caught with even one bag, the following would happen:

- His licence is revoked and he is banned from dealing in Handeni for two years.
- He has to pay a hefty fine
- The transporter carrying the bag would loose his truck
- The village with whom he has delivery contracts will be fined as well

As Juma knows that in principle all civil servants and even private people would receive 10% of the confiscated value of a bag + truck the chance that he can do this undetected is slim.

The old fashioned collusion is hardly possible anymore because it are the two village charcoal producer associations that are in the final analysis “issuing” the permits through their delivery contracts. The council merely sanctions it by issuing the actual ERVs. He could of course bribe the ERV issuing officer to persuade him to give Juma 100 bags for the price of 10. Unlike under the old system where the collusion involved money that had never entered Council or FBD coffers in the first place and therefore difficult to assess, now it involves real money as these bags were prepaid. It constitutes embezzlement.

But why would the Council sell him only 150 bags whilst they see he is going to trade 450 bags or why would Juma buy 150 bags in the first place and not for example 100 bags (his profits will increase). The latter is simply uneconomical for Juma. With 150 bags he only has to go three times to Dar, with 100 bags he has to travel four times. If he is really clever he just drives to the next District repack the charcoal in other bags and return to Handeni. In this case he might even be able to use the same bag 10 times. And as far as the Council is concerned he is simply allowed to use the bags several time.

In the above example Juma and the villagers “cheated” the Council as he had delivery contracts for a total of 450 bags and yet they sold him 600 bags. This is not financial cheating but a breach against the rules of the forest management plan. This is more difficult to uncover and would even profit Juma even more in the long-term because if discovered, the agreement concerning the management plan will be revoked and Juma does not have to pay the extra premium anymore. Would the charcoal association be prepared to do it? In the case the management plans are revoked the producers will loose their premium and have to pay the village a higher tax. It is always possible that they would risk it. But given that they know that Juma stands to gain considerably from their loss they would consider this kind of cheating twice. Even if they double cross Juma by

selling charcoal to another dealer who does not have a deliver contract it would backfire on them and not on Juma.

At the beginning of the new month the process starts again. Juma has to get new delivery contracts, has to go to the Council and receives upon payment new bags. The new bags have a completely different colour so that it is even visible from a 100 metres away whether a bag has the right monthly colour or not.

2. The Producer

An awareness campaign has informed the villages along the Chalinze – Segera Road about a proposed new system. After learning about the potential benefits, a number of villagers in Mkata formed a charcoal business association. (In reality some of their members are middlemen) and joined the negotiation process. With the conditions described in the previous Chapter having been approved, the association has two options: producing with a management plan or producing without one. Given the positive incentives (higher producer price) and negative ones (higher sustainability tax in case of production without plan) the association of course opts for a management plan.

It looks very simple and promising:

- The village becomes the full and unrestricted owner of all the trees within the boundaries of the village
- Households “hire” the trees they want to cut from the village government; Tshs 500/per household per year in case there is a management plan, Tshs 3,000 in case they do not have a plan
- Charcoal producers will not be harassed anymore.
- The Association has to make monthly delivery contracts with designated traders. Although unwritten they used to have these kind of contracts before the new system

Based on past experiences they are not sure whether to believe this new plan or not or whether the Government, whether Village, Ward, Council, National, is simply looking for a way to squeeze money out of them. So they quickly agree to the managed production option but are really not firmly committed to it. First see and wait. (As the Law governing the possibilities of a village land forest reserve is not expected to be enacted for at least another year, this option is not discussed here)

The procedure for the management plan has a number of components and steps.

The whole village agrees to designate part of the “pourini” that has no use for agriculture land in the foreseeable future as a “forest” A few landmarks (big trees, stones, painted white and maybe a path or seasonal stream) are used as the boundary.

A forester comes and surveys the area together with interested association members, other villagers and representatives. He asks what the village wants to do with the area (objectives of management). Reply: charcoal, firewood, building poles, grazing and some other small stuff like mushrooms, medicinal plants, etc. Doing a few transects and using the basal area calculation technique he quickly arrives at the conclusion that on average standing volume is roughly 40 M³ per hectare with an M.A.I. of about 1.0 M³ per Hectare. As the designated area is about 500 Hectares the conclusion is that the Association could produce 500 bags of charcoal per year in a sustainable manner and use the rest of the allowable production for firewood and what not. For this year a harvesting coupe of about 12 Ha is chosen and demarcated in the same way as the overall management area.

The forester explains that they have to leave a few small trees, which he paints, points out some potential future valuable timber trees that the association could leave standing if they wish to do so, discusses the value of early burning and that is about it. The only strict condition is that no cutting of wood is allowed outside the harvesting coupe. Other activities like grazing, grass collection, etc. are allowed. He makes a rough sketch, writes down the management objectives, allowable

charcoal annual production levels, some other necessary details and a visiting/training schedule (once every three months). The forester, the village government and the chairman of the association sign the plan, which including the map is 3 pages long. The whole exercise should be over and done with in a couple of days. The village has to pay the forester an allowance to do the job and for the subsequent training visits (out of the sustainability tax).

The described exercise is cutting a lot of corners and foresters might be horrified by the seemingly sloppy and hasty way of doing things. But it is justified. These are not valuable timber or biodiversity areas but woodlands with an extremely low added value. Making inventory, etc. is part of management cost and they should not exceed the expected benefits. Moreover, it are villagers not foresters managing these woodlands. With little time and management knowledge you can not give them plans they can not implement.

Each household has paid the Tshs 500 annual sustainability tax to the Village Government and this gives them in principle the right to undertake activities in the managed area, inclusive charcoal burning. But not everybody is in need of charcoal. The solution to this lies with the formation of the Charcoal Association. They would have to be villagers (youth for example) who become professional burners. In other words the average farmer, who does not like to burn charcoal anyhow, hands the activity over to professionals. In return the farmer receives a guaranteed monthly fee from the Association that would partly compensate the household for the taxes paid to the Village Government and a share of the profits made. It has to be worked out by the villagers themselves how much this would be. The whole idea behind this is to start putting value on trees and to start professionalising the production. The Association would of course try to cheat the villagers out of their right share (that everybody is from the same village does not stop them from cheating each other). But with annual allowable production levels and monthly delivery contracts with traders openly displayed at the Village Office, the non-charcoal producers will have a stake in and the means of controlling the Association. (households that have not paid the tax have no rights)

The issue of control of the whole management area is the trickiest part. It needs to be done by the Association and three youth who are to be employed by the Village, using part of the sustainability tax.

The village left of course a considerable part of their “pourini” outside the management area because it contains either fallow land or will be converted within the next few years. These areas will of course be used for charcoal, firewood and building poles as well. But this is allowed and even implicitly promoted as it will serve as a bufferzone for the managed “pourini”. The whole idea is really to let villagers gradually get used to the idea over the course of some years of managing their resources rather than exploiting them.

With the plan out of the way they now can enter into the monthly delivery contract with the trader. They receive the special Handeni Charcoal Bag for that month and start working.

During his quarterly visits the forester, accompanied by the trader (!) will monitor operations and give advice. During the dry season next year the old plan will be reviewed and if necessary revised, a new coupe will be developed, annual harvesting levels established, sustainability tax levied, etc.

As mentioned, cheating at this level in the sense of “overproducing” or not bothering to manage is a real threat and will undoubtedly happen. But there are opposing forces. The Village and Council would like to see this happen as they earn more money from unsustainable production through the raising of punitive taxes. Producers and traders could lose more than they win. But the villagers will be the big losers. They earn less and have to pay more. They will try to keep the Association to the management plan.

3. FBD and the Council

Their role is simple and straightforward, collection of tax and monitoring the system. The rewarding of civil servants with 10% of the value of confiscated produce and transport is a crucial centrepiece in the whole system. At present it is very difficult to do but some innovative and creative ways need to be found to make it possible.

Whereas under the current system FBD and the Council are the big losers, under the proposed system the biggest losers are those elements within the civil service engaged in collusion. There might not be that many but any system will quickly collapse if this is not being brought under control. It is crucial that both organisations have to reintroduce one way or another the fundamental rule of any organisation: rewarding of good behaviour and punishing of bad behaviour.

3.3 The First Steps

Firstly, the current debriefing note needs to be translated into Kiswahili. It might be summarised as long as the essential issues are covered.

Secondly, the Council and FBD agree to settle their current differences and jointly invite representatives of traders and villages along the Chalinze – Segera Road to a workshop in Handeni to discuss the Kiswahili report. The discussions should focus on part 1 of the report, not part 2 (to hand out the report in two separate papers would facilitate this). Is the analysis of the Consultant correct or have issues been overlooked. At the end an agreement should be reached whether it is desirable for all parties to indeed start a negotiation process that looks at how the system can be improved. If yes, part 2 is handed out as a possible solution or rather guidance in which direction the final solution could lie.

Thirdly, after an agreed upon time span (a month or so) the parties rejoin to start the negotiations.

It is advised though to GTZ that it makes available two facilitators that should guide and chair the initial meeting and the subsequent negotiation process.

3.4 Conclusion

The whole proposal is basically aimed at three items:
Checks and balances to create transparency, credibility and empowerment
Positive and Negative incentives to initiate a change in behaviour in a more desirable direction
A gradual learning process for all parties involved.

As already stated several times, the proposal is neither a draft nor a project plan. It is also not a shopping list or menu from which parties can choose the desired items. Everything is linked together and picking a thing here or there will render the whole proposal useless. The parties could come up with a whole new proposal. So be it. But it has to make sense, i.e. profitable, to all parties involved and has sufficient checks and balances and incentives, simple and affordable and process oriented.

The Consultant can not claim that the current proposal is the ultimate answer. It must have weaknesses as well. But only the actual implementation can unearth weaknesses in a system and adjust it accordingly.

Annex 1 Inventory

Inventory should be done in a quick, simple and economical manner. It should aim at roughly determine the standing volume, species composition and the Mean Annual Increment. The best way of doing this is by using the basal area calculation using a relascope, a cheap and known instrument to foresters that can be produced even locally. Although the method is simple and quick people nevertheless need to be trained in it. The following outline provides some basic guidelines to the inventory process.

After the village has earmarked a forested area for sustainable charcoal production, the forester visits the area and carries out the following process:

1. Determination of basal area by the use of a relascope

- B = Basal area - (m²/ha)
- n = Number of tree counts in a 360° sweep with the relascope
- w = Width of the slot in the relascope
- l = Length of the relascope = distance from observers eye to slot
- D = diameter of "border-tree" (counted ½)
- R = Radius of "sample plot" = distance from observer to tree

Given: $D/R = w/l$ and $B = (w/l)^2 * 2.500 * n$

Measurements

With $w/l = 1/50$ the "Factor" = $(w/l)^2 * 2.500 = 1$, which is the case for the standard version of e.g. the Skogma relascope. In this case the basal area equals the number of trees counted in one 360° sweep. If $w/l = 1/100$ the "Factor" = $(w/l)^2 * 2.500 = 1/4$. In this case the basal area equals 1/4 (one fourth) of the number of trees counted in one 360° sweep. With a smaller "Factor" the size of the sample plot and the number of trees counted increases, and hence the accuracy and the precision of the method is increased. In an average miombo woodland, the basal area typically varies between 5 and 15 m²/ha. It is thus obvious that relascope measurements with "Factor" = 1 will have a low precision, and the use of a relascope with for example "Factor" = 1/4 is thus recommended.

If the average basal area differs significantly from the above mentioned, the use of a relascope with a different "Factor" should be considered in order to obtain the maximum precision. Relascopes with such different "Factors" can easily be produced locally from a wooden rod with an attached plastic piece wherein the appropriate slot is cut/shaped.

During the actual use of the relascope, special attention should be given to:

- Trees with $D/R > w/l$ should be counted "1".
- "Border-trees" ($D/R = w/l$) should be counted "½".
- The point of "measure" should be DBH.
- Trees with a DBH less than the minimum diameter should not be counted (whatever the relationship between D/R and w/l).
- Non-exploitable tree-species should not be counted.
- Trees can be hidden to the observer due to other trees or bushes in the line of sight. If these hidden trees' $D/R \geq w/l$, they should nevertheless be counted.
- Multi-stem trees can in some cases count more than "1".

(Initial) Verification - "Calibration of eye-sight"

In order to "calibrate" ones eye-sight, the following operations can be executed:

- Place a white piece of paper behind the tree stem to enhance the distinctness of the diameter (DBH) of the tree.
- "Border-trees" can be verified by measuring the diameter (D) with a caliber and the distance (R) to the observer with a tape measure. If $D/R = w/l$, the tree should be counted "½". If $D/R > w/l$, the tree should be counted "1". Otherwise it should not be counted.

The liability and the consistency of the relascope measurements relies very much on the experience and the training of the person taking the measurements. Initial to any inventory, training and calibration is therefore highly recommended.

2. Stratification

The forest cover has to be divided into strata but for simplification purposes the strata should be broad and few in number.

3. Layout of sample plots and intensity of sampling

It is of paramount importance that the sample plots are laid out in an unbiased way, that is, the plots should represent the average condition in the strata of the forest. In practice this can be achieved as follows:

1. Prior to the inventory the distance between the setting of clusters of sample plots is decided - say every 500 meters. Following a chosen track in the forest the forester makes stops at each 500 meter interval. At this point, and perpendicular to the direction of movement, 2 centers of sampling are chosen, - 1 on each side of the track - by pacing 50 meters on either side of the track.
2. Along the lines in a 1-meter belt all trees above 10 cm dbh are recorded separately for species and diameter at breast height (dbh). The result of this exercise is a tabular indication of main species and diameter distribution

In order to alleviate the variance of the composition of the woodland itself as well as the inaccuracy of the measurements, the necessary number of sample plots can be determined as follows. The number of sample plots should be such that an additional sample plot would not affect or change the average of the previous plots outside the given or chosen interval of precision.

Example:

Plot	Basal area m ² /ha	Basal area running average	Deviation from previous avg.
1	7,5	7,50	
2	5,8	6,63	-12%
3	5,5	6,25	-6%
4	3,0	5,44	-13%
5	7,8	5,90	9%
6	4,8	5,71	-3%
7	2,3	5,21	-9%
8	5,5	5,25	1%
9	6,0	5,33	2%
10	2,3	5,03	-6%
11	7,8	5,27	5%
12	3,5	5,13	-3%
13	5,5	5,15	1%
14	7,8	5,34	4%
15	2,3	5,13	-4%

If the precision e.g. is decided to be $\pm 5\%$, it is seen in the above example that after the 11th plot, the deviation from the previous running average stays within these 5%, even for extreme values of the basal area.

The chosen interval of precision (expressed in percentage) should be less than the acceptable level for the whole management set-up. In the case of charcoal production one could easily get away with a 8% to 10% variance.

4. Standing volume

Using the average basal area and the average diameter as described in the previous section, the average standing volume ($m^3/ha > 10 \text{ cm dbh}$) is determined/estimated using the attached volume curve (basal area - volume).

5. The Use of GPS (Global Positioning System)

As speed and economy is considered much more important than a very high accuracy or precision, it is not recommendable to work with differential GPS.

In order to be able to educate and train the core forest staff in the use of GPS, it is necessary first to give some basal instructions concerning coordinates and the UTM grid system (UTM = Universal Transverse Mercator). This presents at the same time the opportunity to verify and correct certain errors on the maps already produced.

The training should mainly concern the features of position determination and navigation to a known set of coordinates, which both are aspects of forest mapping and management.

Although the GPS technology is highly sophisticated, the use of its basic features are quite simple, and the consultant is confident that the trained core forestry staff will be able to make good use of this technology for the benefit of forest mapping and management.

Annex 2 Management Plan

Management Plans for forested areas that are mainly used for charcoal production, firewood collection, possibly grazing and some harvesting of non-wood products need to be simple, cheap and quick to make, flexible and updated on an annual or even a biannual basis. With the main aim of producing charcoal a designated forest area is to be divided into annual harvesting coupes. Given the prevailing forest types in Handeni District the preferred harvesting method should be as much as possible based on clear felling, i.e. removing in principle all trees > 10 cm diameter at breast height (DBH) and let natural regeneration do the restocking. On a mutual agreement between the people and the forester certain trees could be earmarked as non-harvestable trees.

Although enrichment planting and fire management are usually prescribed management activities these should be optional, i.e. if people want to do it they can do it. It should however not be put as a conditional activity by the forester. Boundary demarcation should as much as possible follow natural boundaries, i.e. a road, a river/stream bed, etc. Boundary clearing in terms of creating fire lines should not be considered. It is too expensive and labor intensive. Again if people want to do it, they can and should do it. But FBD nor the Council should make any funds available for such an exercise.

The Management Plan should have the following format. (not exceeding 3 pages)

Name of Village:

Size of designated forested area to be managed (ha):

Map of designated forested area (based on available topographic maps) indicating boundaries and location of Harvesting Coupe for charcoal production.

Period of current management plan: (Example: October 2001 to May 2002)

Objectives of management: (example)

- 1. Charcoal Production**
- 2. Grazing**
- 3. Domestic Firewood Production & Building Poles**
- 4.**
- 5.**

Estimated Mean Annual Increment (M.A.I.) designated forest area (M³):

Size of Harvesting Coupe for Charcoal (Ha): ¹⁴

Estimated Standing Volume Harvesting Coupe (M³):

Estimated allowable number of charcoal bags to be produced:

Activities:

Allowed/Intended & Agreed Activities	Harvesting Coupe	Forested Area	Undertaken *)		Remarks *)
			Yes	No	
Examples					
Boundary demarcation	X	X	X		Marker trees to be done again next year.
Thinning	X	X		X	People claimed no time and no need
Early Burning		X	X		Only partially done
Grazing		X	X		Overgrazing in many areas
No harvesting of mature trees		X	X		10 black wood trees illegally cut.
Patrol	X	X	X		On average too little
Charcoal	X		X		200 bags. Within set limits.

*) The first three columns are to be filled in biannually by the villagers and the forester at the start of the six months period. The last two columns are filled in at the end of the six months period. It is an evaluation of the state of affairs. It has to be done by the forester in collaboration with the people.

**Dates and Purposes of foresters' visit:
(To be planned at the beginning of every six months period)**

Date	Purpose	Undertaken		Remarks	Signature forester
		Yes	No		

¹⁴ The size of the harvesting coupe for clear cutting can be calculated in two different ways. One is to multiply the M.A.I of preferred charcoal tree species with the total HA of the designated forested area. For example if the area is 500 Ha and the M.A.I. is 1.0 M³ per hectare per year, the total allowable cut per year is 500 M³. This figure is then matched with the standing volume of a given area. If the standing volume for charcoal tree species is 40 M³/Ha then it follows that the harvesting coupe can not be bigger than 12.5 Ha. Another method is to divide the total forested area by the number of years it takes for the average charcoal tree to reach commercial maturity. This also will give the maximum allowable size of the harvesting coupes. Suppose the area is 500 Ha and it takes 50 years for the average charcoal tree to mature, it follows therefore that an annual harvesting coupe should be maximal 10 Ha. Dividing a forest into harvesting coupes has disadvantages as well and both methods to calculate coupe sizes are very crude and leave a number of issues unanswered. But as a starting point they are good enough. The refinement will come after producers and foresters have gained enough experiences with assessing what is there, what is possible and how things should be done.

The first two columns are planning tools and filled in at the beginning of the six month period. The last three columns are evaluation tools, which the forester has to sign off after every time he/she has made or should have made a planned visit.

Proposed & Agreed improvements/changes for the next six months: