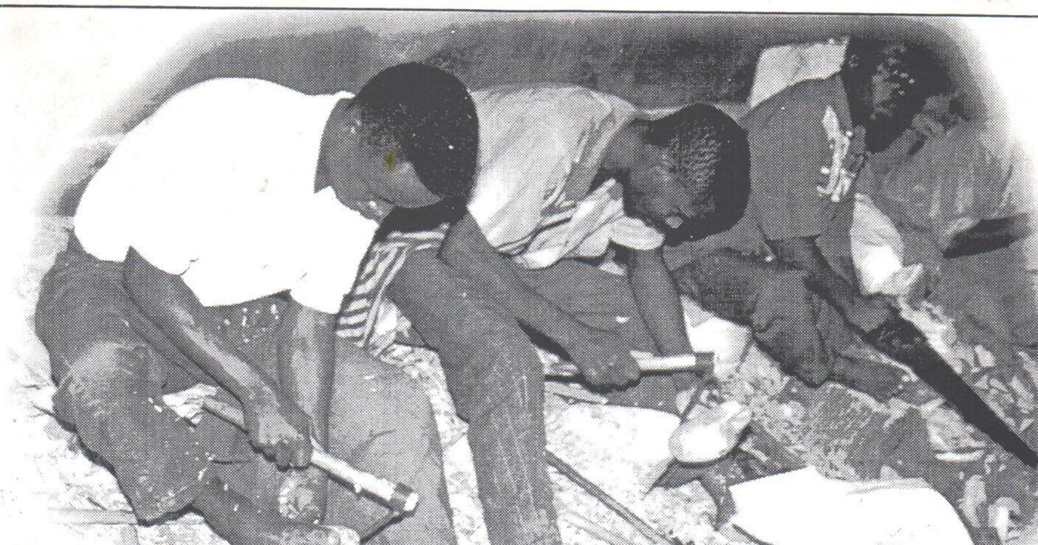


CRISIS IN THE KENYAN WOODCARVING INDUSTRY

OPTIONS FOR ECOLOGICAL AND ECONOMIC SUSTAINABILITY

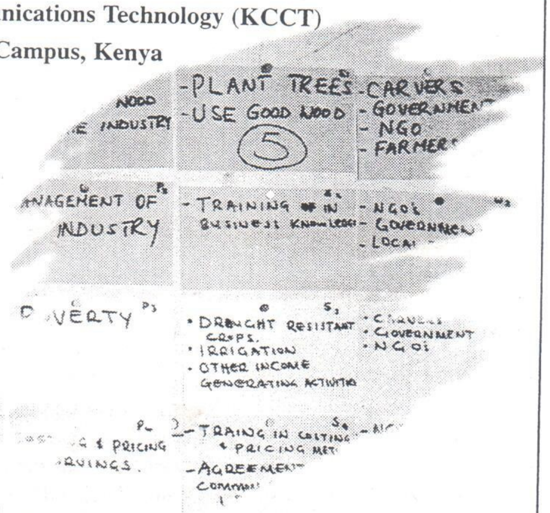
Report on the

Conference of the WWF-UNESCO *'People and Plants'* programme

18-19 September 2000

Kenya College of Communications Technology (KCCT)

Mbagathi Campus, Kenya



People and plants

UNESCO

WWF

We ... commit ourselves to buying, harvesting, carving, selling wood products originating from farmland and plantations while phasing out the use of overexploited slow-growing trees from forests, woodlands and other related land systems.... (Mbagathi Declaration 2000)

United Nations Educational, Scientific and Cultural Organization

UNESCO

Organisation des Nations Unies pour l'éducation, la science et la culture

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Mbagathi Woodcarving Conference

19 December 2000

Dear workshop participants and members of the interested public,

We are pleased to enclose copy of the report on the Conference which discussed options for ecological and economic sustainability of the Kenyan woodcarving industry. To those of you who are directly involved in woodcarving we also enclose a questionnaire and would be glad to receive a feedback on the steps you have taken or intend to take to produce carvings in environmentally-friendly manner.

Since the Conference, Kenya's case for the certification of "good wood" carvings has been presented to the II Annual Conference of the Forest Stewardship Council. While the proposed model of groups of small-scale producers of "good woods" supplying the carving industry does currently not qualify for certification, it is hoped that the arguments presented, and additional data which will be supplied in due course, will be recognized in the near future. At the same time it is foreseen to embark on high-level regional discussions on the FSC Principles and Criteria in order to adapt these to the East African situation of wood and non-wood product supply.

Meanwhile we hope that the conclusions of the Conference and our commitment reflected in the Mbagathi Declaration will contribute to safeguarding Kenya's shrinking forest resources.

Sincerely,

Robert Höft

David Maingi

Your correspondent: Robert Höft, Tel. (dir.): (+254-2) 622668, Fax: (+254-2) 215991, Email: robert.hoft@unesco.unon.org

Contents

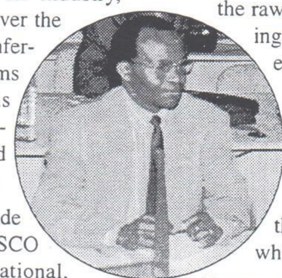
As *muhuhu/muhugu* (*Brachylaena huillensis*, mahogany) and *mpingo/muvingo* (*Dalbergia melanoxylon*, ebony) have become locally extinct carvers now resolve to other species from natural habitats, such as *mũuku* (*Terminalia brownii*) and *itula* (*Commiphora baluensis*). These may be among the next species to be wiped out due to unsustainable harvesting practices.

Francis Nyenze, Minister for Environment and Natural Resources examining a display of "good wood" carvings

Participants of the Conference on the "Crisis in the Kenyan Woodcarving Industry"

1. Background

Mutisya Munge had started woodcarving in Kenya in the early century. Eighty years later his grandson, Dr. Samuel Muthwii, travelled to woodcarving sites throughout the country and identified carvers, businesspersons and co-operatives forming part of an industry, which has constantly grown over the years. In preparation of a conference discussing the problems and opportunities the industry is facing today, he invited representatives of carvers and traders from all major centres.



Since 1994, WWF (World Wide Fund for Nature) and UNESCO (United Nations Educational, Scientific and Cultural Organization), through the '*People and Plants*' Initiative, have been concerned about the ecological and socio-economic consequences of the depletion of the resource base on which the Kenyan woodcarving industry relies. In working with woodcarvers throughout East Africa, the following facts emerged:

1. The Kenyan woodcarving industry supports approximately 80,000 woodcarvers with an estimated 500,000 dependants.
2. Kenyan woodcarvings are worth more than 1.5 billion Kenya Shillings per year.
3. The Kenyan woodcarving industry uses over 50,000 trees equivalent to almost 8,000 m^3 of wood annually. This is equivalent to ten trees being felled per hectare of natural closed-canopy forest in Kenya every year.
4. Until recently, the Kenyan woodcarving industry relied to about 90 percent on three preferred tree species: mahogany (*muhuhu, Brachylaena huillensis*), ebony (*mpingo, Dalbergia melanoxylon*) and olive (*mutamaiyu, Olea europaea* ssp. *africana*).
5. The selective harvesting of preferred species has led to a decline and locally to a collapse of the tree population and contributed to the degradation of forests and woodlands.
6. The selective harvesting of mature trees of the preferred species has limited the species' regeneration ability (due to removal of the seed source) and endangers the survival of small mammals, birds, reptiles and insects who depend on these trees for food or shelter.
7. The collapse of Kenyan populations of *muhuhu, mpingo* and other carving species has caused the problem to be exported into Tanzania, with hundreds of logs being smuggled across the border to meet the Kenyan demand for woodcarvings.
8. Although woodcarving adds high value to the raw material, large quantities of carvings are of poor quality and do not easily attract buyers or are being sold at extremely low prices.
9. The marketing of woodcarvings has become increasingly difficult both locally and internationally. Carvers have much of their capital tied up in carvings which cannot be easily sold.

Naturally, the economic and social consequences of increased difficulty to obtain raw materials at reasonable prices and the marketing problems have been felt by carvers and their dependants. Equally, the ecological consequences of forest degradation to which the demand for carving wood contributes has alarmed forest managers, conservationists and the general public.

The '*People and Plants*' Initiative therefore brought together carvers, designers, buyers, traders, farmers, representatives of environmental groups, government departments and development agencies to discuss opportunities and ways leading out of the ecological and socio-economic crisis facing the Kenyan woodcarving industry.

In preparation of the conference, WWF and UNESCO had commissioned a consultant to prepare a background document. The terms of the consultant were *inter alia* to (1) identify and list the key stakeholders in the woodcarving industry; (2) update the stakeholders on the current status of the industry and proposed intervention measures and (3) select stakeholders' representatives to attend the conference.

The background document can be obtained from the 'People and Plants' Programme Office at UNESCO-Nairobi.

It should be noted that the interest in participating in the Conference was much greater than the capacity of about 70 participants who could be invited. All documents and reports are therefore being made available to anybody interested in the subject.

2. Conference Proceedings

The Minister for Environment and Natural Resources, Hon. Francis Nyenze, as the Guest of Honour, opened the Conference. He commended carvers for getting together for actively seek solutions to the problems facing the industry. In his opening speech (Appendix I) he outlined the history of the woodcarving industry and its role in providing work and income to rural people as well as traders. However, he urged both carvers and traders to be committed to the safeguarding of the environment. The Minister deplored the existing wood shortage and stressed the Forest Department's plans to include woodcarving species into its planting programme. He pointed out that the new forest policy provides for agreements with local communities to establish woodlots in order to meet their wood requirements. Entering into such agreements would be possible for carvers groups who could be planting both fast-growing "good wood" species as well as the traditional carving species (e.g. olive, *mutamaiyo*).

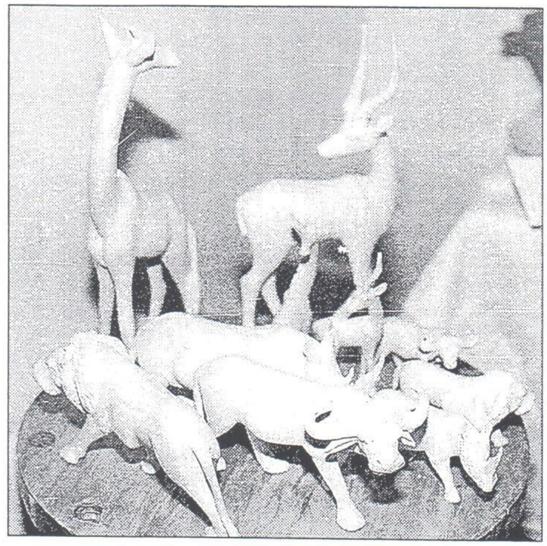
Before the opening, the Director of UNESCO Nairobi Office, Dr. Paul Vitta, had welcomed the Minister and the participants and outlined the theme of the meeting, centred around wood shortage and the prospect of certification of "good wood" products.

After these remarks, presentations were given by UNESCO-'*People and Plants*', MCC's (Mennonite Central Committee) Sustainable Woodcarving Project funded by the Micro-enterprise Support Programme (MESP) of the European Union, the Kenya Forest Department, Kenya Wildlife Service, the Bombolulu Workshops and Cultural Centre on behalf of the International Federation for Alternative Trade (IFAT), and a representative of a carving community (see Programme in Appendix II).

The speakers addressed the following points:

1. Because of the shortage of traditional carving woods, carvers have explored the possibility to use alternative species, most of which are fast-growing introduced multi-purpose species grown on farms. These include neem (*mwarobaini*, *Azadirachta indica*), *jacaranda* (*Jacaranda mimosifolia*), grevillea (*mukima*, *Grevillea robusta*), mango (*mwembe*, *Mangifera indica*) and others. Because of their fast growth, general availability and suitability to produce quality carvings they have been termed "good woods".
2. The use of "good woods" has minimal ecological impact. The trees are planted primarily for other purposes than for carving (medicine, fodder, shade, ornament, timber), they can be pruned, they coppice and they grow five times faster than forest or woodland species.
3. A neem tree grows to a diameter of 80 cm in 50 years. A *muhuhu* tree requires more than 200 years to grow to this size.
4. Carvings from "good woods" can make excellent art objects with innovative designs. Yet, substantial training is required to help carvers shift successfully from the traditional woods to "good woods".
5. Large importers increasingly demand for carvings produced from sustainable wood sources. Only "good woods" originating e.g. from managed farms or from certified species can qualify.

6. The Sustainable Yield (SY) of neem trees with diameters greater than 50 cm in the Kenyan coastal strip is over 200,000 m^3. This species alone could therefore supply a woodcarving industry 25 times the size of the current without negative ecological consequences.
7. The Ministry for Environment and Natural Resources welcomed the initiative of carvers' groups to replant trees required for woodcarving on public land. The Kenya Forest Department is interested to allow Community Forest Associations, including carvers' groups, to use Forest land for tree planting. Kenya Wildlife Service appreciates community participation in the management and re-establishment of forest resources.
8. To help Kenyan carvers fulfill the criteria increasingly required for export, WWF and UNESCO work with the Forest Stewardship Council (FSC) to achieve certification for "good wood" carvings.
9. To improve the quality and diversity of carvings, the Mennonite Central Committe provides training on design and wood properties and kilns and drying sheds are being tested.

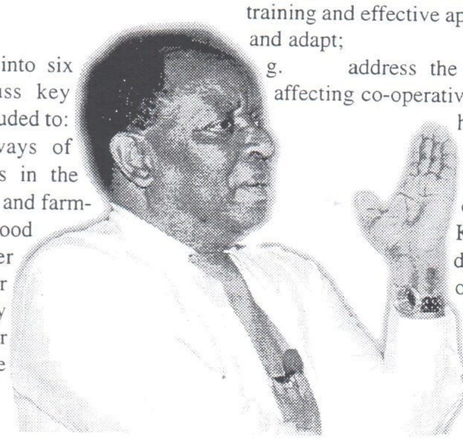


The presentations were followed by a summary of the issues and an introduction to the group discussions.

3. Group Work

Participants were divided into six working groups to discuss key areas of concern. Tasks included to:

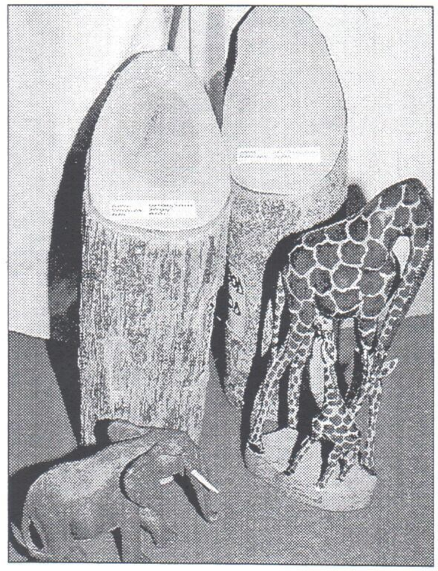
a. look for effective ways of involving stakeholders in the wood carving industry and farmers in planting good wood plant species, other local species used for wood carving and any other species for improvement of the environment;
b. identify obstacles that hinder massive tree planting campaigns and modalities of doing it and explore the possibility of involving community based groups particularly in places where wood carving industry is intense e.g. Wamunyu;
c. address the problem of pricing woodcarvings to avoid exploitation of carvers by middlemen;
d. discuss the problem of wood wastage and ways of minimising it;
e. look into the marketing strategies of co-operatives or individual carvers to make them more effective and to expand markets. This should include other measures for improving the trade;
f. elaborate the need for educating carvers, identify the areas in which they need training and effective approaches to adopt and adapt;
g. address the leadership crisis affecting co-operatives;
h. elucidate the problems of corruption facing co-operatives and KCCU e.g. in the distribution of orders, elections and the education of voters, etc.;



i. discuss the use and the popularization of good wood and its products in Kenya and elsewhere;
j. address the problem of overcrowding and the over taxing of facilities in working sites, which can result in health problems;
k. discuss ways of dealing with wood carving waste;
l. discuss the problems of migration and belonging to more than one co-operative;
m. discuss the possibility of using wood from other countries;
n. find ways of making good wood carvings more appealing to buyers and identify the preservation measures needed.

After initial discussions each working group ranked the six most serious problems affecting the woodcarving industry. In the plenary session that followed, the problems were regrouped, ordered and classified. The problem of the carvers' represention in co-operatives and in the industry in general appeared to be a key problem and was extensively discussed. It is exacerbated by the existence of incompetent, untrained and corrupt management within the co-operatives and in the industry. Currently, co-operatives represent only about 20% of the carvers. Carvers felt very strongly that the leadership keeps them away from co-operatives.

The groups reported back to the plenary and in a ZOPP approach. Areas of shared concern



were written on cardboard paper and pinned up on large boards. In the same way solutions to the problems were suggested and organizations identified who might be in a position to implement the solutions foreseen for each problem.

The six groups were then asked to work out solutions to the problems previously identified. They also had to define who was to address the problem.

The table on the following pages summarizes the results of this excercise.

PROBLEM	SOLUTION	BY WHOM
	PROBLEM 1: ENVIRONMENT	
Lack of raw materials, resources and healthy working environment a. Good wood b. Water c. Seed d. Land	Tree growing techniques	Carvers should initiate tree planting. Co-operatives, NGOs, donors and Forest Dept. should support a. Farmers, carvers b. Farmers, carvers, NGOs (support) c. Farmers, carvers, KEFRI, NGO and donor support d. Farmers, carvers, government, management of co-operative societies and Forest Department
Lack of good working environment	Health education for carvers	Carvers, co-operatives, public health officers, NGOs, Forest Department and donors
Ineffective involvement of stakeholders in tree planting	Creating public tree planting awareness	Carvers, co-operatives, Forest Department, provincial administration, NGOs, donors, farmers
	Carvers to negotiate for specific land from the government	CBOs, co-operatives, NGOs, industry umbrella body, Forest Department, KWS, Lands Office
	Plant trees on private land Use good wood	Carvers, business people, farmers
	Implement: a. Drought resistant crops b. Irrigation c. Other income generating activities d. Growing of good wood e. Dam construction, boreholes, water harvest	Umbrella body, international buyers, co-ops, NGOs, government agencies (e.g. museum, KWS), eco-tourism groups, individual carvers, wholesale buyers CBOs, farmers, carvers, Forest Department, donors, co-operatives, KNFCU, local councils, individuals

	f. Seed collection g. Identifying land h. Assist seedling provision by FD and other agencies	
	PROBLEM 2: MANAGEMENT	
Management of the industry	Create industry-wide trade body	All stake holders in the industry, government, Export Promotion Council, KNFCU, NGOs, donors
Corruption by management in business transactions	Training in business knowledge	All stakeholders, carvers, KACA, KNFCU, NGOs, buyers, farmers
	PROBLEM 3: LEADERSHIP	
Lack of accountability of funds Electable leaders	Transparent measures are to be put in place at all levels	Carvers, co-operatives, government, NGOs, donors
Lack of transparency	Provision of additional facilities according to demand work (space, shop, surrounding area, storage, space for wood, hygiene)	Government, co-operatives, NGOs, carvers
Leadership crisis in carvers groups	Election of right leaders by carvers	Carvers, co-operatives, KNFCU
Poor management of co-operatives	Management training	KNFCU, NGOs, donors
Lack of management skills among co-operatives, individuals, carvers, farmers, companies.	Management training	KNFCU, NGOs, government, supervisors of co-operatives and industry, Export Promotion Council, Chamber of Commerce, donor programmes
Exploitation of carvers	Responsible leadership, market information	Carvers, co-operatives, donors, industry, trade body

Poor relationship between carvers, FD, KWS, KNFCU and administration	Industry-wide trade body	All stakeholders in the industry
Costing and pricing of products	Training of carvers, co-ordination of donor programmes	NGOs, KNFCU, donors
Poor management of nurseries	Train carvers and co-operatives in nursery care	NGOs, FD, donor programmes
	PROBLEM 4: MARKETING	
Lack of appropriate marketing structures, strategies and information	Provide market information in general media industry-wide body	NGOS, UNESCO, government, other donors donor business advisers, carvers, co-operatives, government, trade organizations, media houses
Lack of wood certification knowledge and information on its impact on the industry	Provide certification information. Provide impact data of certification. Prioritise and enhance marketing through trade fairs and exhibitions, education, internet	FD, donors, UNESCO, Export Promotion Council, Chamber of Commerce
	PROBLEM 5: SKILLS	
Lack of certification knowledge	Certification awareness creation by donors and government	Knowledgeable stakeholders
Awareness/training on: a. Wood utilization b. Tree planting c. Good wood acquisition and use d. Costing and pricing of products	Training of wood carvers Holding meetings, training sessions and demonstrations; consultative meetings between related groups (KWS, foresters, administration, NGOs); create awareness on sources of wood; tree planting; use of alternative tree species; training on costing and pricing methods; agreed price levels	KWS, Forest Department, UNESCO, NGOs government, carvers

PROBLEM 6: CORRUPTION		
Graft, pilferage, profiteering, embezzlement	Accountable measures to be put in place by KNFCU	KNFCU, KACA
	Setting up of an industry-wide standards committee	Woodcarvers and members of carver groups, traders, co-operatives, KNFCU KACA, NGOs, donors
	Financial transactions transparency and accountability	Carvers, traders, group leaders, co-operatives, industry
	Need for accountability of organizations and individuals	Carvers, traders, group leaders
PROBLEM 7: RESEARCH AND DEVELOPMENT		
Lack of training and use of right working tools	Designs, tools and equipment, substitute materials	Farmers, carvers, KEFRI, FD, donors
	Colour-free bottomed handicrafts Wood testing	Management of carver groups, traders, co-operatives, co-op management
PROBLEM 8: INDUSTRY-WIDE TRADE BODY		
Lack of co-ordination among stakeholders	Co-ordination of donors, KNFCU, government programmes in sector	Donors, government, External Resources Department, carvers, KNFCU

Encourage farmers to form co-operatives and other types of organisations for specific tasks.	Formation of sensitization and co-ordination committee; sharing of market information; carvers' safety strategies; laws	Carvers, Co-operatives, Donors, KNFCU
PROBLEM 9: WOOD WASTE		
Waste in carving Lack of waste disposal	Conserving/recycling waste (paper, manure, fuel, chip-board); minimizing waste (selection of wood, training, tools)	Environmental NGOs, wood industry

4. Programming Implications

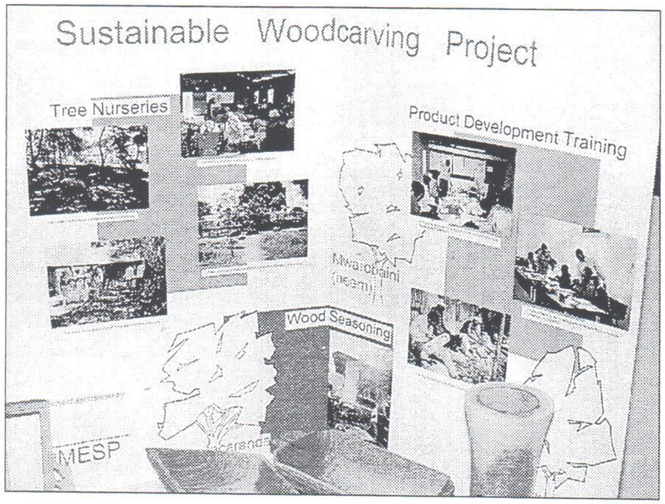
The woodcarving sector in Kenya has - like most informal sector industries - grown in an unco-ordinated way. Control was essentially exerted by social factors of Kamba society and later by decisions of cooperatives formed to represent the carvers' interests. The major advantage of this general absence of planning within the sector has been that carvers have been able to fill most niches offered to their entrepreneurial skills. Originating from Wamunyu, the two main rationales for expansion and/or migration of parts of the industry were the pursuit of markets and the striving for raw materials.

In the past, carvers have thereby dealt to a large extent with well-intentioned partners who saw the marketing of carvings as a contribution to rural development. Prices paid by those fair trade organizations (such as OXFAM, the Mennonite Central Committee, Traidcraft, Brot für die Welt etc.) were often higher than those paid by business-oriented traders and probably contributed more than half of all sales.

Deceived by the corruption within the sector and the inertia of its leaders vis-à-vis the current environmental and economic crisis, fair trade partners find themselves having to adopt a more market-oriented approach while at the same time providing training in many areas in which the industry has allowed deficits to develop. These include in particular: planting of trees to ensure future wood supplies; management of the resource on a sustainable-yield basis; trials on wood properties and development of appropriate tools; business skills including planning, product development, quality control, marketing and financial skills.

While the unco-ordinated development of the industry and the subsequent dispersal of carvers groups has been advantageous for the access to raw materials and markets it must be considered a major disadvantage for interventions particularly for the provision of training programmes and the development of supply plans from sustainable sources. The Kenya Crafts Cooperative Union, which has been the natural partner for activities to develop and strengthen the industry at large and to prepare it for the future has deceived both its members and the fair trade partners it delt with. Efforts to support an adaptation of the industry to environmental limitations and to the market demand through KCCU have proven ineffective. Indeed, most organizations, which in the past had accepted KCCU as a carver's representation, discontinue to do so. And as carvers increasingly leave the cooperatives under KCCU to join other groups it naturally ceases to be cooperative union.

Interestingly, however, despite disappointing experience with centralized structures for the production and marketing of various kinds of produce in Kenya (e.g. coffee, milk, rice, sugar, tea etc.) participants of this Conference saw the need for an industry-wide trade body. In other words: they called for a functioning "KCCU". This seems to contravene the recognition that the most successful carving groups are not associated with KCCU but are either firmly managed business enterprises or small cooperative-like structures which provide those services which KCCU has promised but not provided to its members (training, social security, quality control, market studies, fair prices for quality products etc.).



Most large fair-trade buyers of carvings increasingly doubt that either government agencies or a single trade body would help to solve the problems carvers are most concerned about. As a consequence, they have resolved to working with individual carving groups, providing them with business training and advice on wood acquisition and design. This presents interesting possibilities for carvers' groups who take the initiative to request for support and who can show that they are genuinely committed to making a change happen:

1. On the aspect of environmental conservation the *People and Plants* programme (WWF and UNESCO) work with national partners to assess the availability of "good woods" and recommend sources for acquiring these. At the same time the programme facilitates the lease of land from government agencies for planting trees.
2. OXFAM provides to its partners training on business management, planning and accounting. As OXFAM decides not to continue buying wood products other than those made from "good woods" this training becomes available only to groups who have taken a clear decision for environmentally conscious production of woodcarvings. The Microenterprise Support Programme (MESP) has also expressed interest in providing training on marketing and business administration.
3. The Mennonite Central Committee (MCC) and its Ten Thousand Villages Programme provide training on product design and product control, as well as on other aspects relating to the production and marketing of woodcarvings.

These types of support complement each other and the organizations contributing to it are in close collaboration. Increasingly, they will limit their activities to strenthening those carvers' groups which show a serious commitment to environmental conservation.

The commitment of the Conference participants was shown when the Plenary adopted the Mbagathi Declaration (see Appendix III a and III b). It is hoped that this will be reflected in future actions.

APPENDIX I

SPEECH BY THE MINISTER FOR ENVIRONMENT, HON. FRANCIS NYENZE, EGH, M.P, ON THE OCCASION OF THE OFFICIAL OPENING OF THE WOOD CARVING STAKEHOLDERS CONFERENCE AT MBAGATHI ON 18TH SEPTEMBER 2000

Ladies and Gentlemen

Wood carving in Kenya was started in a very humble way by Mutisya Munge in the year 1918 after the Second World War. This happened at a little known Kambiti village in Wamunyu, Machakos District. The first carving that he made was a walking stick with a human face, which impressed the Local District Commissioner who ordered for more walking sticks. This was actually the starting of the trade. As more orders flowed in from that humble beginning the trade has grown from Wamunyu to all major centres in Kenya and to other parts of the region.

Today the industry has about 80,000 wood carvers supporting about 500,000 people. In total, by 1997 the industry earned about 1.5 billion Kenya shillings in the local and the export market, and thus the craft can be described as a very successful rural based industry. The industry is unique in that it is mainly rural based, using production factors from our rural areas namely labour and raw materials. It requires minimal investment and it is a leading rural based foreign exchange earner for the country.

In the current difficult economic situation in the country characterised by declining farm product, wood carvings prices seem to be relatively stable in the international market, a situation that the Kenyan carver need to exploit to the maximum. It is my hope that this conference will come up with strategic actions for the carver to benefit maximally from the trade.

In the recent past wood carving industry has received a lot of concern and interest among researchers, environmentalists, business community, conservationists and landowners because of the problems which are threatening to make it unsustainable. The interest of the groups I have mentioned is to put the industry into a sustainable footing. Studies carried out by National Museums of Kenya and KEFRI with support from WWF and UNESCO have shown that the industry is afflicted by a number of drawbacks. Inspite of these problems affecting the industry there are many exploited opportunities. It is with this view that the '*People and Plants*' programme of UNESCO has persistently attempted to put in place initiatives to put together the stakeholders in the industry to decide on its future.

Ladies and Gentlemen

Development achieved in the industry is enormous but there are trade offs and limitations that have to be addressed and very urgently. The woodcarving industry has been relying on selected indigenous species, Like, Mahogany, Olive, Mpingo and Rosewood whose growth rate does not balance with the rate of removal. The deficit accruing has caused overexploitation of those species. The over reliance on these species has resulted in biodiversity degradation and a threat to the environment. The end result has been a decline in the amount of wood supplied to the wood carving industry. All in all this is a serious threat to the survival of the industry, calling for urgent intervention measures to reverse the trend.

In the international circles carvings buyers have become aware of the negative impacts caused to the environment. This has prompted them to reject carvings from the over exploited species. Locally this has been translated into declining sales of woodcarvings in the world market. The decline has been enhanced by competition with cheap carvings from other parts of the world and other synthetic products. There is need to address this problem so that Kenyan carving can compete favourably with products from other parts of the world.

Coming back home all is not well within the carving industry where management of wood carving groups is heavily invested with inter-clan divisions and lack of cohesion which lack positive impacts required to enhance competition in the present day marketing. Indicators of this state of affairs is the rate of the current group and co-operative disintegrations into small groups and individual carvers which is not healthy for the growth and the existence of the trade. Other problems observed within the industry include low investment in personnel training, lack of marketing strategies and corruption. The resulting industrial environment forms a good base for middlemen to exploit the carving producers. This conference is taking place at the right time before the situation goes out of hand by bringing all the concerned parties together to arrive at a concesus for the way forward.

Ladies and gentlemen,

It is important to mention some of the intervention measures being adopted, such as the "good wood" campaign by UNESCO. The aim of this campaign is well known by most of you, calling for the use of alternative woods referred to as "good woods" These woods include the well known neem, Jacaranda, grevillea, blue gum and the mango trees which are successful agro-forestry trees. Carvings from these trees are competing well with those of the indigenous species in the local and international markets. The woods or the tree species are quick growing capable of meeting wood requirements for the industry sustainably.

Efforts to put in place a certification system for carvings is a milestone in gaining entry into the world market while at the same time ensuring sustainable production of wood for carving under sound environmental management systems. The current pilot certification system in Malindi for neem will form a good base for the process, which can be replicated in the other parts of the country.

To ensure sustainable production of wood carving, planting of the trees used for woodcarving has been a major task within the "good wood" campaign. Carvers' groups have started tree nurseries with the aim of planting trees in their farms. Discussions are at an advanced stage between my ministry and carvers groups for joint management of carving wood plantations within the government land. In this area my ministry promises full support.

Education is an important ingredient in the development of any industry. With this in mind efforts are being made to train carvers in effective wood utilization, marketing and business management. The few carvers so far trained are showing signs of adopting new designs and accepting to implement research findings relevant to their needs.

Ladies and Gentlemen

I am optimistic that this conference will address all these issues and come up with lasting solutions to the problems affecting the industry looking at the experience and the academic qualification of the participants of this conference, I am convinced that this is the right forum to address the issues.

Ladies and Gentlemen

Before, I conclude may I now take this opportunity to thank you all for leaving your busy working places to come and participate in this workshop, and also thank UNESCO for organizing this important workshop.

With these few remarks, it is now my pleasure to declare this meeting officially open.

Thank you.

APPENDIX II

Crisis in the Kenyan Woodcarving Industry - Options For Ecological And Economic Sustainability

Conference of the WWF-UNESCO initiative on "People and Plants", 18-19 September 2000, Kenya College of Communications Technology (KCCT), Mbagathi Campus

Programme

Monday, 18 September 2000

8-9 am	Registration of participants
9-9:45	Welcome address - Paul B. Vitta, Director UNESCO Nairobi Office Opening of the Conference - Francis M. Nyenze, Minister for Environment and Natural Resources
9:45-10:30	GROUP PHOTO AND TEA BREAK
10:30-12:30	Presentations

UNESCO - Robert Höft
MCC - Cindy Eby, Randall Mast
Forest Department - Charles Mbugua
KWS - Gideon Gathaara
IFAT - Julius Musyoki
Carvers - Samuel Kivuitu, David Mbiti
UNESCO - Samson Muthwii and David Maingi

12:30 - 2:00	LUNCH
2:00 - 3:00	Group work: Review of problems in the woodcarving sector
3:00 - 3:30	Group presentations
3.30 - 4:00	TEA BREAK
4:00 - 5:30	Group work: recommendations for solving problems in the woodcarving sector

Tuesday, 19 September 2000

8:00 - 9:00	Presentation of group work: recommendations for problem solution
9:00 - 10:30	Review of group work
10:30 - 11:00	TEA BREAK
11:00 - 12:30	Plenum discussion
12:30 - 2:00	LUNCH
2:00 - 4:30	Conclusions and recommendations
4:30	Official closing - Peter Aura, Kenya National Commission for UNESCO

APPENDIX III a

MBAGATHI DECLARATION

CONCERNED about the continued degradation of Kenya's forests and woodlands and the environmental problems thereby caused

CONSCIOUS of our contribution to the overharvesting of selected tree species from forests and woodlands

AWARE of the need to preserve the diversity of Kenya's forests and woodlands and to protect these for future generations

RECOGNIZING the growing awareness about environmental issues in global trade and marketing and the restrictions it imposes on the exportation of products made from destructively harvested trees

AWARE of the abundance of fast-growing multi-purpose trees suitable for carving such as neem (mwarobaini), jacaranda, grevillea, mango and others on private farmland and their availability for sale

ACKNOWLEDGING the desire of the Kenyan Government to offer land for the growing of trees suitable for carving

ACKNOWLEDGING the need for transparency in the woodcarving sector for the betterment of the livelihoods of Kenyan woodcarvers now and in the future

We as a representation of

Carvers, Designers, Buyers, Traders, Farmers, Environmental Groups, Development Agencies

COMMIT ourselves to buying, harvesting, carving, selling wood products originating from farmland and plantations while phasing out the use of overexploited slow-growing trees from forests, woodlands and other related land systems

COMMIT ourselves to the promotion of tree-planting to replenish the exhausted resources of raw materials for carving and to the establishment of tree nurseries and plantations of wood suitable for carving

DECLARE our readiness to work with the Government of Kenya to seek solutions to the degradation of forests and woodlands in the country

CONFIRM our desire to work actively towards a certification system for sustainably sourced woodcarvings by setting up transparent and fair systems of wood acquisition and providing to consumers information on the origin and type of wood in use

DECLARE our commitment to work toward a more transparent woodcarving sector for the benefit of all parties involved

THEREBY becoming Ambassadors for environmentally sustainable and socially conscientious wood use

YOUR PARTICIPATION IS WELCOME

APPENDIX III b

AZIMIO LA MBAGATHI

KUTILIA maanani kuendelea kwa uharibifu wa misitu na mbuga nchini Kenya na matatizo ya kimazingira yanayosababishwa na uharibifu huo

KUJUA tunavyochangia katika uchumaji wa ziada wa aina ya miti fulani kutoka misituni na mbugani

KUFAHAMU kuweko kwa haja ya kuhifadhi mazingira ya misitu na mbuga za Kenya kwa ajili ya vizazi vijavyo

KUTAMBUA kuendelea kwa ufahamu wa mambo ya mazingira katika biashara za ulimwengu na utafutaji wa soko, na vikwazo inavyoweka katika usafirishaji mali/sanamu ambazo hutengenezwa kutokana na miti iliyopatikana kwa njia ya uharibifu

KUFAHAMU kuweko kwa miti mingi ambayo inakua kwa haraka na yenye matumizi mengi, na ambayo inaweza kutumiwa kuchonga sanamu, kama vile muarubaini, jakaranda, grevillia, mwembe, na mingineyo, ambayo inapatikana kwenye mashamba ya watu binafsi tayari kuuzwa

KUTAMBUA mapenzi ya serikali ya Kenya kutoa ardhi kwa ajili ya kupanda miti ifaayo kwa uchongaji sanamu

KUTAMBUA haja ya kuwa na uwazi katika secta ya uchongaji sanamu ili kuboresha maisha ya wa-Kenya wanaoshughulika katika uchongaji wakati huu na wakati ujao

Sisi kama wawakilishi wa

wachongaji sanamu, wasanii, wanunuzi, wafanya biasahara, wakulima, wahudumu wa mazingira na mashirika ya maendeleo

TUMEJITOLEA kununua, kuchuma, kuchonga, kuuza, sanamu zilizotengenezwa kutokana na miti iliyokuzwa mashambani ili kukomesha utumiaji wa ziada wa miti ya misituni na mbugani, au maeneo mengineyo kama haya

TUMEJITOLEA kuendeleza upandaji wa miti ili kurudisha hali za sehemu zilizoathiriwa na utumiaji malighafi kwa ziada, na kustawisha ukuzaji wa miche ya miti, na kuanzisha mashamba makubwa ya miti, hasa ile inayofaa kwa uchongaji sanamu

TUNATANGAZA kukubali kwetu kufanya kazi na serikali ya Kenya ili kutafuta masuluhisho ya uharibifu wa misitu na mbuga humu nchini

TUNAHAKIKISHA mapenzi yetu katika kufanya bidii ili kustawisha huduma za utoaji wa stakabadhi kwa ajili ya matumizi bora ya sehemu ambazo miti huchumwa, kwa kuweka mipango ya uwazi na ya haki katika uchumaji wa miti na kwa kuwapatia habari wanunuzi juu ya mahali miti ilikochumwa na aina ya miti iliyotumiwa

TUNATANGAZA kujitolea kwetu katika kupigania kustawika kwa secta ya uchongaji sanamu kwa manufaa ya wote wanaohusika

HIVYO basi tuwe mabalozi wema katika kuimarisha mazingira yenye faida za kuendelea na matumizi ya miti kwa uangalifu kwa mahitaji ya jamii

KUHUSIKA KWAKO KUNA KARIBISHWA

APPENDIX IV

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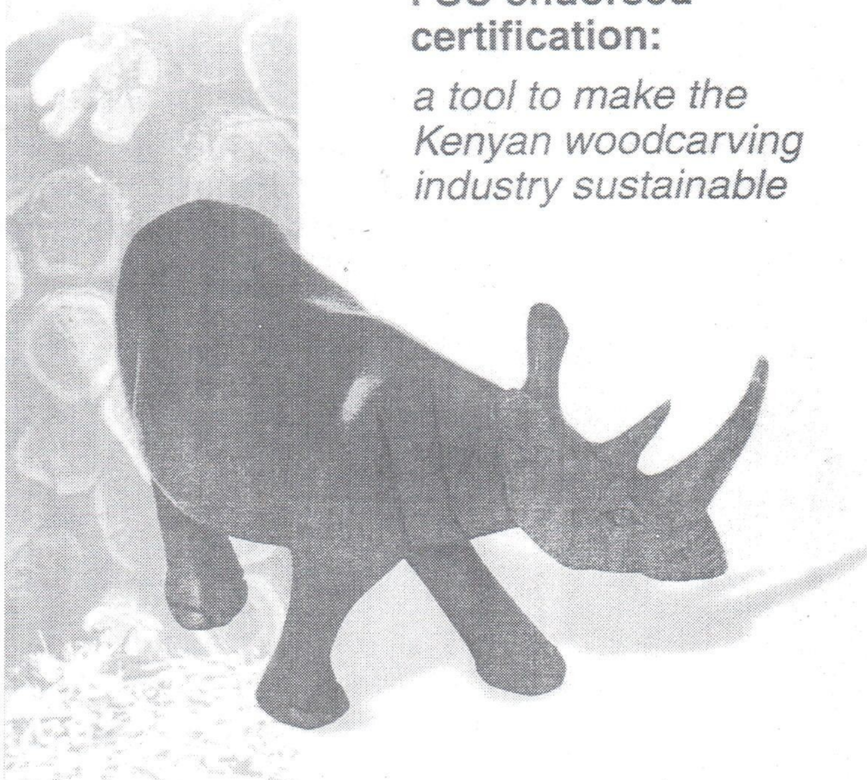
Help save the 'wooden rhino'



FSC endorsed certification:

a tool to make the Kenyan woodcarving industry sustainable

For comments or requests of copies please contact: *People and Plants*, UNESCO Nairobi Office, P.O. Box 30592 Nairobi. Tel.: 622668, Fax: 215991, Email: robert.hoft@unesco.unon.org

TITLE:

REPORT ON THE SURVEY AND THE CONTRACT ON THE INTERESTED GROUPS (STAKEHOLDERS) IN THE WOOD CARVING INDUSTRY IN KENYA

PRESENTED BY

DR. SAM MUTHWII (KENYATTA UNIVERSITY)

TO

UNESCO OFFICE GIGIRI

6TH SEPTEMBER 2000

3. Select some (stakeholders) and show them the necessity of attending the September 18th – 19th meeting at Mbagathi.

The survey involved pre-identification of the main Wood Carving Zones in the country and their work sites. For each work site the key stakeholders were identified and contacted for the purposes of achieving the objectives listed above.

During the exercise, it was necessary for the researchers to meet each evening to asses the success of each days work and deliberate on any improvements or new strategies.

After the exercise the collected data was analysed and its findings detailed in this report.

Researchers
Dr. Sam Muthwii (Kenyatta University)
and Mr. David Maingi (UNESCO)

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Dr. Sam Muthwii (Kenyatta University)
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REPORT

TASKS COVERED

I. OBJECTIVE ONE AND TWO

Every zone and its sites (as identified in the work assignment) was visited and some key stakeholders in the wood carving industry identified and contacted.

Identification Criteria for the Key Stakeholders Contacted

1. Representation for every worksite or subzone.
2. Stakeholder's exposure to what happens in the wood carving industry considering the length of time (years) of involvement.
3. The familiarity with the current issues affecting the industry.
4. Involvement in the leadership of a co-operative or a society.
5. Experience in the use of "good wood" and the awareness of the current problems facing the industry.
6. The number of stakeholders at a particular site determined the number of representatives picked from a site.
7. Ability to communicate ideas either in English/or Kiswahili.
8. In some cases educational level
9. Familiarity with the nature of problems facing stakeholders at a particular site or the industry in general.
10. Level of participation to ensure that all the levels were represented.

II OBJECTIVE THREE AND FOUR

1. Invitation to attend the September Meeting

A list of carefully selected individuals who will attend the September meeting was made. Majority of those selected were among those who were involved in the interviews. Each selected person was prepared for participation in the meeting. The picked stakeholders represented different operational levels and worksites or locations. The number representing each worksite (or zone) was determined by the number of stakeholders in the worksite or zone. Special scrutiny was made to be able to pick key people who can and will be able to influence decisions and action.

2. The Tentative Agenda

During the discussions with the stakeholders a number of issues which are important for the improvement of wood carving industry came up. These issues and the observations made (by the researcher) during the visits were used when making the tentative agenda given below:-

(a) Discuss and look for effective ways for involving stakeholders in the wood carving industry and farmers in the planting of "good wood" plant species other local species used for wood carving and any other species for the improvement of the environment.

(b) Discuss problems which can hinder massive tree planting campaigns and the modalities of doing it and find out the possibility of using community based groups (CBOs) particularly in places where wood carving industry is intense e.g. Wamunyu and the other surrounding areas.

(c) Discuss the problem of pricing wood carvings to avoid exploitation of carvers by middle men.

(d) Discuss the problem of wood wastage and ways of minimizing it.

(e) Discuss marketing strategies by co-operatives and by individual carvers for the purposes of making them more effective and expand markets. This should include other measures for improving the trade.

(f) The need for educating carvers, which areas they need education in and the effective approaches to adopt and adapt.

(g) Discuss the leadership crisis affecting the co-operatives

(h) Discuss the corruption problems facing the co-operatives and KCCU e.g. in the distribution of orders, elections and the education of voters e.t.c.

(i) Discuss the use, and the popularisation of "good wood" and its products here and elsewhere (even abroad).

(j) Discuss the problem of overcrowding and the overtaxing of facilities in working sites which can result to health problems.

(k) Ways of dealing with wood carving waste.

(l) Problems of migration and belonging to more than one co-operative.

(m) Possibility of using wood from other countries (?)

(n) Way of making "good wood" carving products more appealing to buyers and the preservation measures needed e.t.c.

III OBJECTIVE FIVE

Findings and Accomplishments

1. Many stakeholders are aware about the need to use "good wood" as an alternative to the local wood types due to the serious problem of wood shortage. However they are not sure as to whether to use it because of its quality e.g. Jacaranda.
2. There is a serious wood shortage nearly if not in all the worksites.
3. Due to the shortage mentioned in number two wood carvers are turning to and trying any alternative types e.g. yellow wood. This may result to a serious environmental disaster in places like Wamunyu, Yatta, Kitui e.t.c. Also some of the newly found suitable alternatives are being overharvested.
4. Farmers are playing a major role in the provision of wood for carving in nearly all the worksites and so they are playing and increasingly important role in the provision of raw materials for the industry..
5. Nearly all the co-operatives are seriously afflicted by administrative and corruption problems which involves the co-operative leaders and the KCCU.
6. Mass production of poor quality wood carvings is becoming a serious problem because of the influx of the numbers of wood carvers due to the problem of joblessness. This in turn causes another problem, the problem of the wastage of valuable and scarce wood (many carvers unskilled), falling of prices and administrative problems of co-operatives.
7. The need for an umbrella body to represent all the wood carving co-operatives and societies. Some don't belong to KCCU. This will be important in the streamlining of issues affecting the industry.
8. The wood for carving is becoming too expensive and hence affecting the profit margin especially because the buyers still insist on the old prices of carvings.

9. The need for centralising the marketing of the products and the general organization of the industry (This related to number 7 above).
10. Not many carvers have been using gravillea as a source of good wood. Those who used it are positive about it. There is a lot of it in central province.
11. Serious overcrowding in some worksites e.g. Changamwe, Wamunyu e.t.c. causing over use of the available facilities which poses a serious health risk (<u>may be this can be discussed as an agenda</u>).
12. Need to organise or use organised community based groups (of CBGs to start "good wood" and other type of tree nurseries and give them education, material and financial support (only where necessary) so that they can play a more effective role in the provision of wood for carving.
13. There is exploitation of farmers by wood carvers when buying their wood e.g. yellow wood. This a problem in places like Wamunyu, Yatta and Kitui.
14. Since the majority, if not all wood carvers, have little or no education they might need external assistance to be able to sort out some of their problems.

<u>**NB**</u>: Please find attached to this document the following:

(a) A list of wood carving retailers from the Export Promotion Council

(b) A list of Wood carvers invited to attend the September 18th-19th Stakeholders Mbagathi Workshop

(c) A list of the Akamba Wood carving Stakeholders ~~not~~ interviewed.

(d) The details of the identified and visited wood carving groups and businesses.

LIST FROM EXPORT PROMOTION COUNCIL

LIST OF WOOD CARVING RETAILERS
(EXPO PARTICIPANTS)

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5.	MANGELES ENTERPRISES P.O BOX 86336 **MOMBASA.** ATTN. EUNICE N. KALA TEL. 011487219 FAX : 011-227250 / 315557
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NAKURU	TOWN (POST OFFICE AREA)	BENSON PETER MUIA	RETAILER	507 NKU	210612 BOOTH
	PIPELINE AREA	JAMES MAUNDU	CARVER	313 NKU C/o JOSEPH NDUkU-THI	
	NAIVASHA	JOHN KINYANJUI	RETAILER (CURIO SHOP OWNER)	989 NAI-VASHA	30164
NAROK	EWASONGIRO	DR. SUVA	RETAILER	161 NBI	0158/ 55404 MATUI
WAMUNYU	WAMUNYU TOWN	DANIEL IKUSYA NGUKU	CHAIRMAN-WAMUNYU CO-OP	12 WA-MUNYU	0145/ 63230
		BENEDICT MUINDI	SECRETARY WAMU-NYU CO-OP	"	"
		MUSAU MULINGE	WHOLESALER/ RETAILER	"	"
		SOLOMON MUTUNGA	RETAILER	------------	63232
		JACKSON NDAMBUKI	RETAILER	WAMU-NYU	63232
		SAMUEL MBOLONZI KITAVI	RETAILER	219 WA-MUNYU	0145/ 63080
YATTA	KATANGI	AUGASTINE MANYI	CHAIRMAN/ RETAILER	22 KATANGI	51 KA-TANGI
		DAVID MUASA	CARVER	"	"
		JAMES MUTISO	CARVER	"	"
YATTA	IKOMBE	TITUS MAUNDU NZAMBU	RETAILER	26 KIV-UNGA	22 KIV UNGA
YATTA	KATHWII (MASINGA)	PAUL KATHINZI MUSEMBI	RETAILER	-----------	---------

ZONE	SITE	NAME	PERSONAL DETAILS	ADDRESS	TEL NO
NAIROBI	PUMWANI SITE	JACKSON MUTUA KALULU	CHAIRMAN NAIROBI CO-OP	13095 NBI	760030 766768
		BONFACE KIVUVA NGUNDA	CHAIRMAN KCCU CARVER	13095 NBI	766768
	CITY MARKET	G.G.W. NTHENGE	RETAILER	46635 NBI	230112 221156
	OR MOLU (NEAR NATIONAL LIBRARY)	MRS. SUSAN MWENDWA	RETAILER	----------	---------
NANYUKI- MT KENYA	NANYUKI (EQUATOR)	FRANCIS WAMBUA	CHAIRMAN	314 NAN-YUKI	32476 32979
		BENSON MUSAU MATELI	CARVER	"	"
		PIUS MBEKE	CARVER	"	"
	SAGANA	ROBERT NJOROGE	RETAILER	303 SAGANA	46256
	NYAHURURU (MAILO INE + THOMPSON FALLS)	DANIEL MUTUA MUNYWOKI	CARVER/ RETAILER	38 NYA-HURURU	32289 PUBLI C BOOT H
		PETER MUTINDA KITUI	CARVER	"	"
MOMBASA ZONE	MOMBASA ROAD KIBOKO	PAUL MUTUA MUANDIKO	CARVER	5 MAKIN-DU	0302/ 22465 BOOT H

ZONE	SITE	NAME	PERSONAL DETAILS	ADDRESS	TEL NO
MOMBASA ROAD	MBUI NZAU	COSMUS MULUNGE	CHAIRMAN / RETAILER	27 KIBWEZI	110 KI-BWEZI
		MARTIN NGUNGU	SECRETARY / RETAILER	"	"
		DAVID MBUVI	CARVER	"	"
	TSAVO VILLAGE CURIOS	PATRICK MATIVO	SHOP OWNER (MANAGER)	604 VOI	0147/ 3047 VOI
		AMOS NZIOKA NTHIWA	RETAILER (CURIO SHOP OWNER)	"	"
MOMBASA TOWN	CHANGAMWE	MUYANGA NGULI	CARVER	82041	432241
		MOSES KAUMBULU KILONZO	CARVER (EX-CHAIRMAN)	"	"
		JOSEPH KIVINDA MUANZA	CARVER/ RETAILOR	"	"
		JOSEPH MUTUKU MUTEI	CARVER/ DESIQNER	"	"
		JOHN KIILU MAINGI	CARVER	"	"
		DANIEL MUTISO NGONZE	CARVER/DESIGNER	"	"
		BONIFACE KIMONGO KIMANI	CARVER / DESIQNER	82041	432241
		PAUL MWIKYA NDUNGI	TREASERER (MSA CO-OP)	"	"
		DAVID WAMBUA	SECRETARY (MSA CO-OP)	"	

LIST OF WOOD CARVING STAKEHOLDERS INTERVIEWEES (CARVERS, RETAILERS, WHOLESALERS)

NAME	SITE	ADDRESS	TEL. N
DAVID MUASA	KATANGI	BOX 26 KATANGI	51 (BOOTH NUMBER)
MUTUNE KYUI	KATANGI	……………	15 (BOOTH NUMBER)
DR. SUVA	NAROK (UASO NGIRO)	BOX 161 NAIROBI	0158/ 55404
BERNARD KINYANJUI	NAIVASHA	BOX 989 NAIVASHA	30164
JAMES MAUNDU	NAKURU (PIPELINE AREA)	BOX 313 C/O JOSEPH NDUKUTHI	NO TEL
BENSON PETER MUIA	NAKURU (OPPOSITE POST OFFICE)	BOX 507	210612 NKU
DANIEL MUTUA MUNYWOKI	NYAHURURU (MAILO INE AND THOMSON FALLS)	BOX 38	32289 (BOOT
PETER MUTINDA KITUI	NYAHURURU (MAILO INE)	BOX 38	32289
ROBERT NJOROGE	SAGANA	BOX 303	46256
FRANCIS WAMBUA	NANYUKI (EQUATOR)	BOX 314	32476/32979
BENSON MUSAU MATELA	NANYUKI (EQUATOR)	BOX 314	32476/32979
PIUS MBEKE	NANYUKI (EQUATOR)	BOX 314	32476/32979
MBATHA MUTYOTA	WAMUNYU	BOX 23	0145 63469
WILFRED MUSAU	WAMUNYU	BOX 69	0145 63232
PENINA NZAUMI MUTHWII	WAMUNYU	BOX 43	63232

NAME	SITE	ADDRESS	TEL NO
PETER KAMARI (FOR ROBERT MUCHIRI NJAUS (OWNER)	NDARA (AFTER VOI FROM NAIROBI)	BOX 198 LOITOKITOK	0302/22295
COSMUS MUINDE KYULI	LUNGALUNGA (KENYA- TANZANIA BOUNDARY)	BOX 157 LUNGALUNGA	MESSAGE THROUGH CHANGAMWE
KILAKA KILONZO	"	"	
MUTUA KALANI	"	"	"
MUYANGA NGULI	CHANGAMWE	85315	432241
MOSES KAUMBULU KILONZO	CHANGAMWE	85315	432241
JOSEPH MUTUKU MUTEI	CHANGAMWE	85315 MSA	432241 MSA
JOSEPH KIVINDA MUANZA	CHANGAMWE	"	"
MICHAEL KALII	CHANGAMWE	"	"
JOHN KIILU MAINGI	CHANGAMWE	"	"
DANIEL MUTISO NGONZE	CHANGAMWE	"	"
PAUL MWIKYA NDUNGI	"	"	"
BONFACE KIMONGO KIMANI	"	BOX 82041	432241
PATRICK MATIVO (OWNER AMOS NZIOKA NTHIWA)	TSAVO VILLAGE CURIO SHOP	BOX 604 VOI	0147/30447
MUTUKU NZENGY'A	**MBITINI CARVERS GROUP**	**C/O WAMUNYU CO-OP OR MONDAYS AND TUESDAYS AT CITY MARKET**	
PAUL KATHINZI MUSEMBI	**YATTA MASINGA**	**BOX MASINGA**	**NO TELEPHONE**

NAME	SITE	ADDRESS	TEL NO
KITONYI NZIOKA	CITY MARKET	45696	221156
HENRY MUSYOKA MULI	CITY MARKET	46814	226929
IRENE NZISA NZIOKI	CITY MARKET	45696	221156
JEREMIAH MWAMISI	CITY MARKET	17219	228347
G.G.W. NTHENGE	CITY MARKET	46635	230112 221156
BERNARD NZAU	TABMAN ROAD (DEV TOWERS3 RD FLOOR)	73763	244113
PETER MOMINA	HILTON HOTEL (CURIO SHOP KUBUKUBU)	44782	222074
JOSEPH MBALUKA KILOMO	ATHUSI	7881	221626 (NOT PERSONAL)
DAVID MBUVI	MBUI NZAU	BOX 27 KIBWEZI	110 KIBWEZI
COSMUS MULUNGU	MBUI NZAU	BOX 27 KIBWEZI	110 KIBWEZI
MARTIN NGUNGU	MBUI NZAU	”	”
REYMOND MUTUNGA	KIBOKO	BOX 5 MAKINDU	0302/224650
TITUS MAUNDU NZAMBU	YATTA(IKOMBE)	BOX 26 KIVUNGA	22 KIVUNGA (NOT PERSONAL)
JOSEPH MUKOLA	MOMBASA SOUTH COAST UKUNDA SHOW GROUND	BOX 1282 UKUNDA	0127/3349 0127/3239 FAX

THE DETAILS OF THE IDENTIFIED AND VISITED WOOD CARVING GROUPS AND BUSINESSES

	GROUPS INDIVIDUAL KIOSK BUSINESS SITES	SITE	OPERATIONAL STATUS	NO. OF MEMBERS	WOOD TYPES CARVED	SOURCE
1	WAMUNYU WOOD CARVING HANDCRAFT CO-OP (RETAILERS/CARVERS)	WAMUNYU	REGISTERED	1700	JACARANDA MAHOGANY OLIVE WOOD EBONY ROSEWOOD OTHER LOCAL SPECIES EG. YELLOW WOOD	LOCAL FARMERS NYERI, KARURA MR. KENYA KITUI LOCAL FARMERS
2	NAIROBI WOOD CARVING HANDCRAFT CO-OP (RETAILERS/CARVERS)	PUMWANI	REGISTERED	1200	JACARANDA MANGO YELLOW WOOD ROSE WOOD MAHOGANY ROSEWHOOD OTHER TYPES	FARMS AND HOMES FARMS AND HOMES FARMS AND HOMES UKAMBANI MT. KENYA (NYERI) KARURA (NGONG) UKAMBANI FROM UKAMBANI
3	AKAMBA WOOD CARVING HANDCRAFT COO-OP (RETAILERS/CARVERS	CHANGAMWE (MOMBASA)	REGISTERED	1200	JACARANDA MANGO NEEM MAHOGANY TICK WOOD ROSE WOOD	FARMERS FARMERS FARMERS VERY RARE VERY RARE VERY RARE
4	BIDII WOOD CARVING CO-OP (RETAILERS/CARVERS)	OPPOSITE THE POST OFFICE NAKURU AND PIPELINE	REGISTERED	ABOUT 100	JACARANDA	LOCAL FARMERS
5	KATANGI WOOD CARVING CO-OP (RETAILERS/CARVERS	NUMBER OF SUBSITES IN TOWN	REGISTERED	ABOUT 40 CARVERS RETAILERS	MAHOGANY EBONY ROSEWOOD YELLOW WOOD A NUMBER OF WOODS TYPES	RARE KITUI FARMER FARMER LOCAL FARMER
6	EMALI WOOD CARVING CO-OP (RETAILERS/CARVERS	EMALI	REGISTERED	NOT KNOWN STILL ON THE FORMATIVE STAGE	NO DETAILS YET	NO DETAILS YET

	GROUP	SITE	OPERATIONAL STATUS	NO. OF MEMBERS	WOOD TYPE CARVED	SOURCE
7	JUA KALI WOOD CARVING HANDCRAFT CO-OP (RETAILERS/CARVERS)	DISBANDED	REGROUPING TO SETTLE AT A NEW SITE ALONG MOMBASA ROAD. EMBAKASI JUNCTION	NO DETAILS YET (POSSIBLE TO GET)	N/A	N/A
8	MAKINDU WOOD CARVING HANDCRAFT CO-OP	MBUI NZAU	REGISTERED	130 INCLUSIVE OF 20 NEW MEMBERS	MAHOGANY JACARANDA OLIVE WOOD MAHOGANY OTHER LOCAL WOOD TYPES (SEVERAL)	CHULU FARMERS FARMERS KARURA FARMERS
9	UMOJA WOOD CARVING HANDCRAFT SELF HELP GROUP (RETAILERS/CARVINGS)	KIBOKO	REGISTERED	30	MAHOGANY ROSEWOOD EBONY OTHER LOCALLY AVAILABLE WOOD TYPES	CHULE HILLS FARMERS FARMERS FARMERS
10	JUA KALI WOOD CARVING HANDCRAFT CO-OP	LUNGALUNGA	REGISTERED (SOME OF THE MEMBERS BELONG TO THE AKAMBA HANDCRAFT CO-OP CHANGAMWE	60	MAHOGANY SOME EBONY MANGO (NOT MUCH)	TANZANIA FARMERS FARMERS
11	MILLENIUM HANDCRAFT INDUSTRY AND CULTURAL CENTER (RETAILERS/CARVERS)	SHOWGROUND SITE UKUNDA TOWN SITE AND TIWI SITE	REGISTERED (SOME OF THE MEMBERS BELONG TO UKAMBANI HANDCRAFT CO-OP CHANGAMWE	200	MUARUBAINI MANGO EBONY JACARANDA ROSEWOOD	FARMERS FARMERS SHIMBA HILLS (FARMERS) FARMERS FARMERS (NOTE: THE TIWI GROUP SPECIALISE MORE IN EBONY
12	MANGO MIRAGE EXPORT CO (RETAILERS/CARVERS)	MASII (WETATA)	REGISTERED	109	MAHOGANY EBONY JACARANDA OTHER LOCAL WOOD TYPE	KARURA KITUI FARMERS FARMERS

	GROUP	SITE	OPERATIONAL STATUS	NO.OF MEMBERS	WOOD TYPE USED	SOURCE
13	NANYUKI EQUAKER	MAIN EQUATOR SITE	REGISTERED	300	MAHOGANY EBONY OLIVEWOOD	NYERI (Very little) MERU MT. KENYA
14.	NANYUKI EQUATOR SPLINTER GROUP (RETAILORS/CARVERS)	4 KM TO THE WEST OF THE MAIN SITE	NOT REGISTERED (STILL MEMBERS OF THE EQUATOR GROUP	15 (ABOUT)	OLIVE WOOD MAHOGANY EBONY	MT. KENYA NYERI MERU/KITUI
15.	NYAHURURU MAILO INE GROUP CARVERS	MAILO INE	NOT REGISTERED	ABOUT 10 CARVERS	OLIVE WOOD MAHOGANY	FARMERS NYERI
16	NYAHURURU THOMPSON FALLS RETAILERS	NEXT TO THOMPSON FALLS	INDIVIDUAL KIOSK OWNERS	ABOUT 40	ALL TYPES OF WOOD (BUY CARVINGS FROM ELSEWHERE	NANYUKI WAMUNYU
17	NAKURU TOWN GROUP OPPOSITE THE POST OFFICE (RETAILERS	OPPOSITE POST OFFICE	REGISTERED AS CO-OP BIDII	100 (MORE)	ALL TYPES (BUY CARVINGS FROM ELSEWHERE	WAMUNYU NANYUKI FARMERS
18	NAKURU PIPELINE SMALL GROUP (CARVERS)	NEXT TO PIPELINE DEPOT	SOME MEMBERS OF BIDII CO-OP	OVER 10 CARVERS	BLUE GUM OLIVE WOOD	FARMERS FARMERS
19	NAIROBI WESTLANDS GROUP	WESTLANDS SHOPPING CENTER	MEMBERS OF JUA KALI SOCIETY	NOT KNOWN	ALL KINDS OF WOOD BUY CARVINGSS FROM ELSEHWERE HERE	WAMUNYU PUMWANI MBITINI
20	WAMUNYU KWANTHEI GROUP + MANY OTHER SMALL GROUPS IN WAMUNYU SUPERMARKET	KWANTHEI WAMUNYU	MEMBERS OF WAMUNY CO-OP	ABOUT 30 CARVERS	YELLOW WOOD	FARMERS
21	IKOMBE GROUP (YATTA) CARVERS	IKOMBE	A SMALL GROUP ORGANISED	ABOUT 25 CARVERS	MAHOGANY YELLOW WOOD OTHER LOCAL TYPES	KARURA FARMERS FARMERS
22	MIANGENI SMALL GROUP	MIANGENI (KALAWA AREA)	UNREGISTERED SMALL GROUP CARVERS	ABOUT 10 CARVERS	MANY LOCAL TYPES INCLUDING YELLOW WOOD	FARMERS
23	THE MBITINI GROUP CARVERS	MBITINI KITUI	UNREGISTERED MIGRATORY GROUP OF CARVERS	65 CARVERS 300 RETAILERS	EBONY REOSEWOOD	FARMERS FARMERS
24	NAROK	UASO NGIRO AND NAROK TOWN	CARVING STORES NAROK TOWN AND NAROK MAAIMAHIU ROAD	ABOUT 10 STORES FOR INDIVIDUAL OWNERS	OLIVE WOOD MAHOGANY EBONY TIK WOOD	FORESTS AND FROM OTHER AREAS EG. WAMUNYU KITUI/MERU WAMUNYU

	GROUP	SITE	OPERATIONAL STATUS	NO. OF MEMBERS	WOOD TYPE USED	SOURCE
25	NAIVASHA	NAIVASHA TOWN ON WAY TO NAKURU	INDIVIDUALLY OWNED	ONE OWNER	MAINLY EBONY ROSEWOOD	CHANGAMWE MERU/WAMUNYU
26	NAIROBI CITY MARKET	CITY MARKET	INDIVIDUALLY OWNED STORES	ABOUT 100 STORES	ALL TYPES SOLD	WAMUNYU NAIROBI CHANGAMWE MBITINI
27	TSAVO VILLAGE CURIO SHOP	MOMBASA ROAD	INDIVIDUALLY OWNED BUSINESS	ONE OWNER	ALL TYPES OF WOOD	BUYS FROM ANY SOURCE MAINGLY CHANGAMWE
28	NAMANGA MAASAI SHOW ROOM	NGOIRE	INDIVIDUALLY OWNED BUSINESSES	OWNED BY INDIVIDUALS	ALL TYPES OF WOOD	MBUI NZAU MOMBASA
29	SAGANA	SAGANA NYERI ROAD	INDIVIDUALLY OWNED BUSINESSES	ONE OWNER	ALL TYPES	CHANGAMWE WAMUNYU
30	ZEBRA CURIO SHOW (NAMANGA ROAD)	NAMANGA ROAD	INDIVIDUALLY OWNED	ONE OWNER	ALL TYPES	WAMUNYU MBUI NZAU

Obunga

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SUSTAINABLE DEVELOPMENT OF WOODCARVING INDUSTRY IN KENYA

TECHNICAL PROGRESS REPORT

PHASE II: RESOURCE ASSESSMENT (JANUARY - JUNE 1996)

By

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LIST OF ACRONYMS

a.s.l	above sea level
BD	Basal Diameter
DBH	Diameter at Breast Height
Ha.	Hactare
IPR	Institute of Primate Research
ILO	International Labour Organization
KEFRI	Kenya Forestry Research Institute
KIFCON	Kenya Indigenous Forest Conservation Project
KCCU	Kenya Crafts Co-operative Union
MCC	Mennonite Central Committee
NMK	National Museum of Kenya
UK	United Kingdom
UNESCO	United Nations Educational Scientific and Cultural Organization
WWF	World Wildlife Fund for Nature

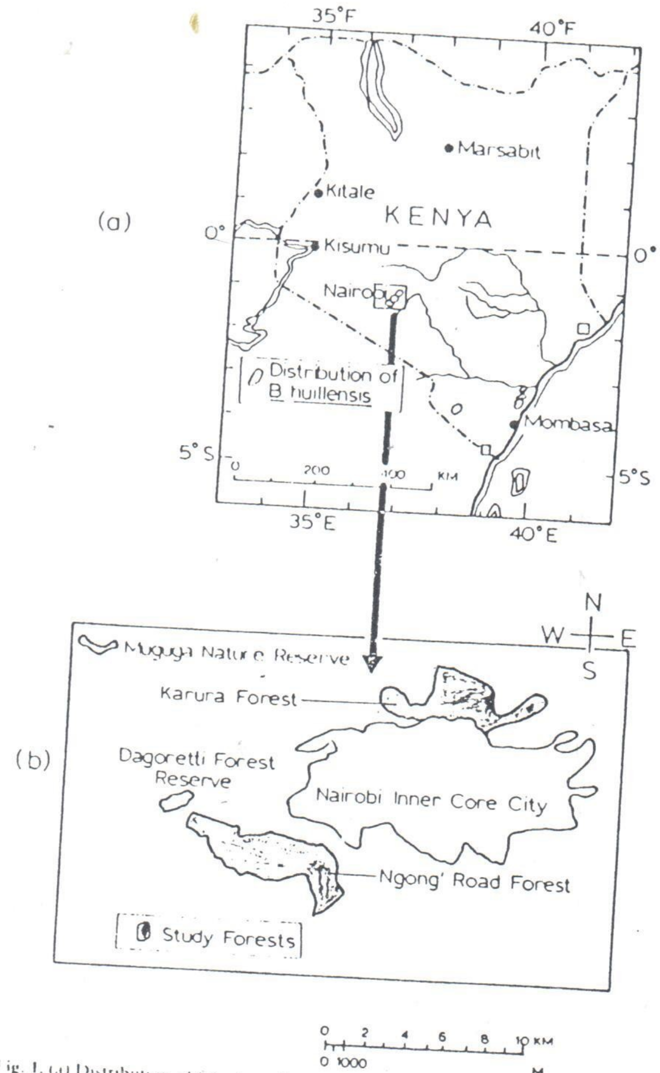


Fig. 1. (a) Distribution of forest patches with *Brachylaena huillensis*. (b) Location of the main study forest areas

Source: Kigomo (1990).

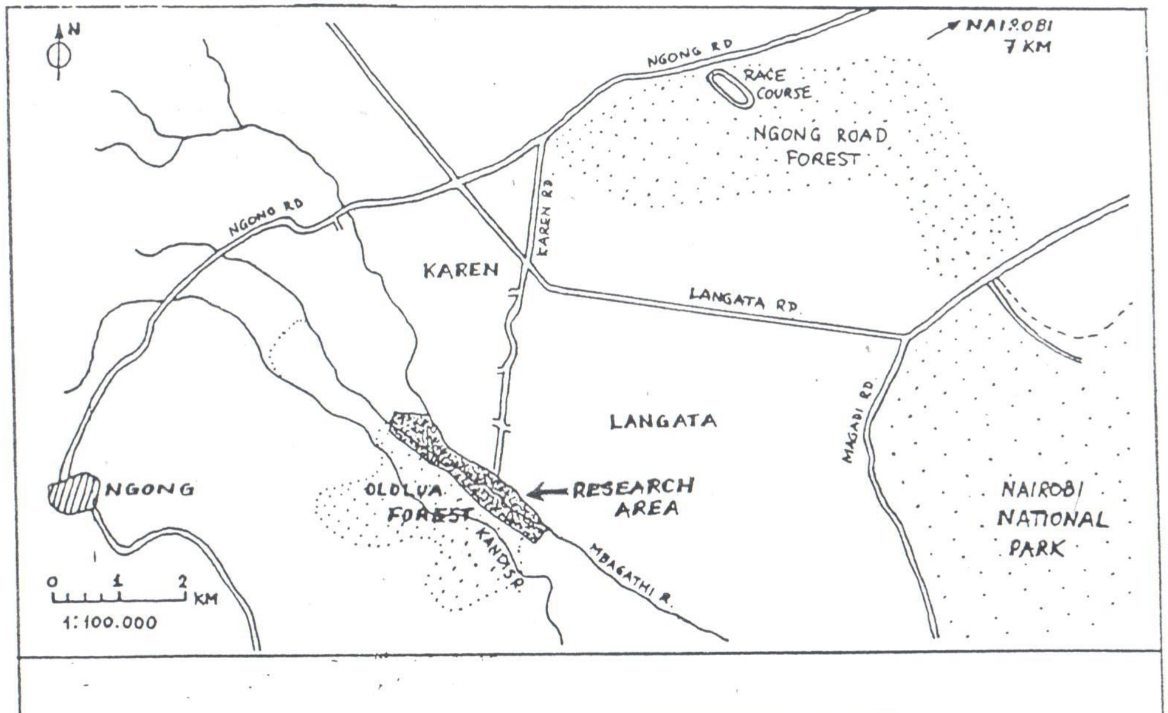


Fig. 2: The Location of Ololua and Ngong Road Forest,
Source: Doute (1976)

SUMMARY

Wood carving is the most important component of the handicrafts industry in Kenya. As a cottage industry, it provides self-employment and supplements incomes from subsistence agriculture in the rural areas. Overall in Kenya, the industry supports some 300,000 people and accounted for over Ksh. 100 million in exports earnings in 1994. Conservation and long term utilization of tree species used for carving require that they be harvested on a sustainable basis. However, the extent to which carving tree species are exploited without adverse effects on natural population is not known.

This study therefore attempts to assess the impacts of human and livestock on the population structure and regeneration potentials of *Brachylaena huillensis* as a key carving hardwood species from three Central Kenya upland dry forests, namely Ngong, Karura and Ololua, all near Nairobi. Data was recorded in randomly selected 0.04 ha. plots for diameter size class distributions (dbh), basal diameters of felled individuals, height of cut, method of cut, approximate age of cut, and stem diameters of established seedlings, saplings and coppices. These parameters of population structure and dynamics indicate a reduction in the population of merchantable (> 30 cm dbh) size classes, with most of the large trees remaining in the forest having poor stem forms. Data further showed that there is a correlation between height of cut and the method used. All large diameter classes (> 74 cm dbh) cut lower than 40 cm height were by ✓ power saw, presumably for industrial use. Karura forest had the highest number of these large diameter size classes.

Intensive and adverse impacts on *Brachylaena huillensis* were recorded and observed in Ngong Road Forest and the Kibera block where all diameter/ age class sizes were felled mainly for use as firewood and construction material in the nearby sprawling urban slum. Evidence of intensive disturbance by livestock browsing and trampling on the juvenile plants were observed in both Kibera and Ololua forest. All the 3 forests are undergoing rapid conversions into agricultural farms, settlements as well as other urban-related developments. At the current levels of utilization and impact, supply cannot satisfy the high demand for the species. This study raises concern that in order to attain sustainability, total control against further exploitation should be advocated for while experimentation with alternative species more abundant and quick growing continue.

* ✓ corrections

Key Words: Wood carving, *Brachylaena huillensis*, population structure, regeneration, impact, sustainability, Kenya.

1.0 INTRODUCTION

The handicrafts industry is an important source of livelihood for many people in Africa, especially the rural poor. In Kenya, wood-carving is the most important component of the handicrafts industry. Like other handicrafts activities, wood carving makes use of locally available natural resources and requires traditional skills and minimal capital input. Often classified as a small scale cottage industry, wood carving not only provides self-employment to many people, but also supplements household incomes from subsistence agriculture. In certain sections of Kenya's communities, for example, the Akamba of Wamunyu village in Machakos District, wood carving is the major source of household earnings, with over 80% of the villagers engaged in the industry. Overall, the wood carving industry supports, directly and indirectly, some 300,000 people in Kenya, and earned the country over Ksh. 100 million in exports alone, in 1994. (Obunga,1995)

Like most of other handicraft activities, woodcarving industry evolved from material culture and is still widely so practised by many rural communities in Kenya. The basic resource on which the industry relies ~~is~~ the indigenous raw materials in the form of hardwoods. As a material culture activity, wood carving ensured that a sustainable balance existed between the resource base and the socio-cultural needs. Commercialisation of material culture products derived from a naturally renewable resource is likely to cause long-term detrimental impacts on the ecosystem unless the industry's resource base is developed at a pace corresponding to the demand rate. In the arid and semi-arid areas (ASALS) of Kenya, also the cradle of woodcarving industry, record of long history of environmental degradation implies that the resultant unfavourable ecological conditions not only limit the rate of plant growth, but the biomass produced is invariably poor and inadequate for sustainable commercial exploitation. Thus, when commercialisation of wood carving started among the Akamba of Machakos soon after the World War I, it became inevitable that without any coupling resource conservation efforts, the problem of finding extraction rates that are ecologically sustainable and profitable would arise.

Over the past couple of decades the drastic and steady increase in the demand for the wood carving raw materials has had marked effects on the natural populations of the most preferred hardwood species. In most of the areas close to the wood carving centres and communities, local resources have been depleted. Since the demand for wood carving has continued to rise, and the trend is forecasted to increase in the future, the carvers have responded to the scarcity by resorting to:

- substitution of new tree species, both indigenous and exotics, as alternatives, the latter often possessing similar characteristics to the traditional carving hard woods;
- importation of the raw materials from elsewhere; and
- migration to new areas in search of the traditionally favoured species.

In either case, the overall effect has been the increased costs and the intensified depletion of local sources of raw materials.

The problem of exploitation and the resultant scarcity of the indigenous species used for carving is closely linked to the multiple demands on the hardwoods as carvers must compete for the same species with other users seeking fuel wood, fencing and building materials, and also for a variety of many other wood-based industries. In addition, due to human population pressure, encroachment and clearance of indigenous forests is taking place to pave way for settlements, urban related development projects and cultivation. In some areas, local extinctions of some of the most preferred species have occurred as a result of over-harvesting. To the wood-carving community and the relatively large number of other people whose lives revolve around the carving industry, these combined adverse impacts on the indigenous raw materials pose a real threat to their major source of livelihood.

Despite the significant role the industry contributes to the Kenyan economy, there is limited data on its dynamics. In order to ensure the sustainability of the industry, there is urgent need to collect and publicise accurate information on its dynamics. Such information can then be used to initiate activities towards natural resource conservation and management, regulation, research and propagation as ultimate means of securing sustainability for the industry.

This report is the second in the series of this two year People and Plants Initiative Project of the WWF, UNESCO and the Royal Botanic Gardens, Kew (UK). The first phase (June - DEC 1995) covered the socio-economic aspects of the industry. The current Phase II of the project focusing on resource inventory and impact assessment has its foundation on the baseline date obtained during the initial phase, and which covered a wide spectrum of the resource users who are often best placed to provide detailed information about their resources.

Resource inventory exercise in the current phase is important because it is focussed to provide information on the natural distribution, abundance, population structure (density, age/size distribution, number of productive adults), and population dynamics (mortality, recruitment, growth and reproductive rates). Data collected is aimed at providing sufficient information useful in assessing sustainability by direct comparison between natural and harvested populations (e.g. the data collected in Phase I revealed the number of people involved in carving, preferential species demand, volumes of timber supplied by species to woodcarvers, and the volumes traded may be compared with the remaining volumes in the known resource areas, in order to determine sustainability).

The present study focuses on the following five species in their ranked order of preferences: 1. *Dalbergia melanoxylon* (Ebony/Mpingo); 2. *Brachylaena huillensis* (Mahogany/Muhuhu); 3. *Olea africana* (Olive/Mutamaiyu); 4. *Combretum schumanii* (Teak/Mwa-osi); 5. *Terminalia spinosa* (Teak/Mutanga). These species constitute the largest volumes of all the timber identified as used for carving in the industry. The source areas were identified in the following three geographical regions in Kenya:

- the lowland dry forests at the Coast (Shimba Hills Forest, Arabuko Sokoke Forest Reserve etc.)
- the woodlands and forests in Eastern Province, (Chyulu Hills, Wamunyu etc.); and
- the upland dry (semi-deciduous) forests in Central Kenya, comprising Karura, Ngong and Ololua, all near Nairobi.

This particular study is part of an extensive resource inventory exercise and aims at examining the natural population structure and dynamics, as well as the extent of human impact on *Brachylaena huillensis*, the main timber species for carving, obtained from the above mentioned three central Kenya forests.

2.0 STUDY AREAS

The study was conducted between April and June in Karura, Ngong and Ololua (Ngong Hills) forests. The first two sites lie about the intersection of Latitude 1.5° S and Longitude 37° E and are approximately 10 km apart. Ngong Road forest is at 1860m a.s.l. while Karura is at 1750m a.s.l. (Fig. 1). The Ololua Forest is situated to the South West of Nairobi at 01° 22'S, 36° 42'E, and lies at an altitude of between 1750 - 1850m a.s.l. The latter forest provided a unique site and opportunity for comparative study. The forest has an exclusion area (Nature Reserve) managed by the National Museums of Kenya as an Institute of Primate Research (IPR). The demarcated area of the National Museums of Kenya is about 125 ha., while the total area of the Ololua forest has been given as 325 ha. by Doute, *et al*, (1976) (Fig. 2).

The three forests have bimodal rainfall patterns and receive their peak rainfall in April and May, followed by a short rainy season between October and December. The mean annual temperatures for Ngong Road and Karura Forests range between 24° C and 11° C for mean annual maximum and minimum, respectively. A maximum of 33° C has been recorded at Karura. The mean temperatures for Ololua is 17.5° C. The vegetation of the three areas can be characterised as dry upland forest and are similar in composition to the *Brachylaena - Croton* forest of Lind Morrison (1974); while Trapnell and Brunt (1987) mapped Ololua as dry intermediate (undifferentiated) forest. Additional information on the climatic conditions, geology, soils and species composition of the forests is given by Kigomo, *et al* (1990) and Trump (1987).

3.0 METHODS

3.1 Sampling Intensity

Kigomo *et al* (1991) reported that *Brachylaena huillensis* is distributed in patches both in Ngong Road and Karura forests. During a reconnaissance survey of Ololua forest, it was confirmed that discrete pattern of distribution is a common feature of the species in the above upland semi-deciduous forests. In order to develop an efficient and cost-effective way of sampling *B. huillensis* in the three forests, it was necessary to determine the number of plots (sample size) in each of the forests. Sampling intensity is an essential criterion to estimate, and depends on the required precision of the estimates. It is conventional to try to achieve confidence limits of 10% at the 95% probability level or the mean of 5% (Blackett, 1994) The statistical objective was therefore defined as achieving a standard error equal to 5% of the mean basal area of trees greater than 10 cm diameter at breast height (dbh).

Initial sampling for determining sample size was done on a few pilot plots selected randomly in each of the forests' blocks with *B. huillensis*. Table 1 and 2 show the statistical formula used in calculating the number of plots required and the sampling intensities of the different forests.

Sampling of *Brachylaena huillensis* was done in 20 x 20 m (0.04 ha.) plots which were randomly located in selected natural forest blocks with representative stands of this species. Choice of quantitative and qualitative data in each forest was based on two objectives: one, to assess the current population status and the various forms and intensities of human impact on the *B. huillensis* by observing and measuring a variety of parameters of all the individual standing (live) or felled trees; and two, to measure and record the regeneration potential of the species through seedling establishment and coppicing.

In each plot the following parameters were measured and recorded for *B. huillensis:*

- basal diameter (bd) and diameter at breast height (dbh) of all standing live or standing dead individuals;
- basal diameters of all stumps of cut (felled) individuals. For each stump, height of cut, measured from the base, and the methods of exploitation (panga, axe, power saw) were recorded. As an additional indicator of frequency and intensity of utilization, attempt was made to determine the age of cut (stumps) on the basis of some observed conditions e.g. degree of freshness or dryness, evidence of rotting, appearance/condition of post-harvest tree parts (leaves, twigs, branches) and then classified into the following 3 cut age of cut categories: < 3 months, 3 months - 1 year, or rotten.
- stem diameters of seedlings and coppices measured using callipers with 0.01 precision were enumerated and each individual sorted out into one of the four size categories: 0 - 0.5 cm, 0.5 - 1.0 cm, 1.0 - 2.0 cm, > 2.0 cm. Coppices were classified as separate individuals, but a record kept reflected the total number from each tree or stump.

In each plot note was taken of the general appearance of the forest with regard to dominant vegetation and associates; type of gaps; slope and aspect; signs of herbivory disturbance on seedlings/coppices; die-backs; parasitism; and other evidences of disturbances (footpaths and logging paths, animal burrows, invasives, open canopies, etc.).

Table 1: **Summary of statistical formula used in determining sampling intensity**

DESCRIPTION	**FORMULA**
The arithmetic mean and Basal area observations	$\bar{X} = \dfrac{\sum x}{n}$
Sample standard deviation	$\dfrac{\sqrt{\sum x^2 - (\sum x)^2/n}}{n-1} = s$
Co-efficient of Variation	$CV = \dfrac{S}{\bar{X}}$
Plots required (Philip,1983)	$N = CV^2/P^2$ N= The required no of plots requred,CV is co-efficient of variation, P is the acceptable precision limit (10%, p= 0.10)

Table2: **Summary of sampling intensities required for the different forest blocks**

FOREST BLOCK	**SAMPLE SIZE**
KARURA	40
NGONG ROAD	50
OLOLUA	20
IPR*	18

*Institute of Primate Research

4.0 RESULTS

4.1 Population structure and regeneration:

4.1.1 Karura Forest:

Figure 3(a) shows the diameter size class distribution profiles of *Brachylaena huillensis* in Karura forest. Although the histogram shows that the distribution conforms to a normal, inverse J-shaped curve in which there is a progressive decline in the numbers in the size classes from the small individuals to the mature trees, there is however only adequate representation of the small and intermediate size classes (5 - 7 cm diameters). The large (mature) size classes over 40 cm dbh are very poorly represented in the population. Figure 3(b) illustrates the basal diameters (bd) of cut stumps of *B. huillensis* sampled in Karura. There was selective exploitation of various size classes with the greatest human impact on the mature (commercial) sizes > 40 cm. These sizes have mainly been logged for industrial purposes, including the carving industry. The predominant method of harvesting was by power saw (Table 3), with most of the trees cut at 34 cm above the ground (Fig 3(c)).

In terms of recruitment, Karura forest had a high potential with very high density of seedlings in the 0 - 0.5 cm size category, and an almost equal number in the sapling categories (1 - 2.0 cm). (Table 4)

4.1.2 Ngong Road Forests

Ngong forest is divided into various distinct blocks among which the following were sampled:- Kibera block, which encompasses the Racecourse, Rowallan Scouts Camp and the Dog Pound area, all bordered By the Kibera slums, and the Langata/Karen block which is bordered by the Bomas of Kenya, and the Old Forest Guard's Post and House.

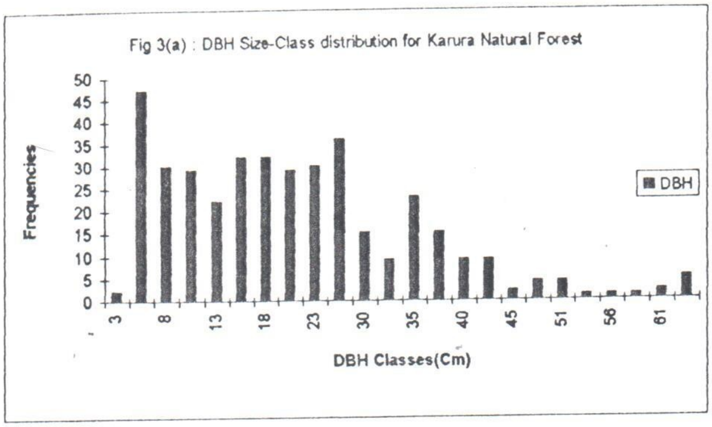


Fig 3(a) : DBH Size-Class distribution for Karura Natural Forest

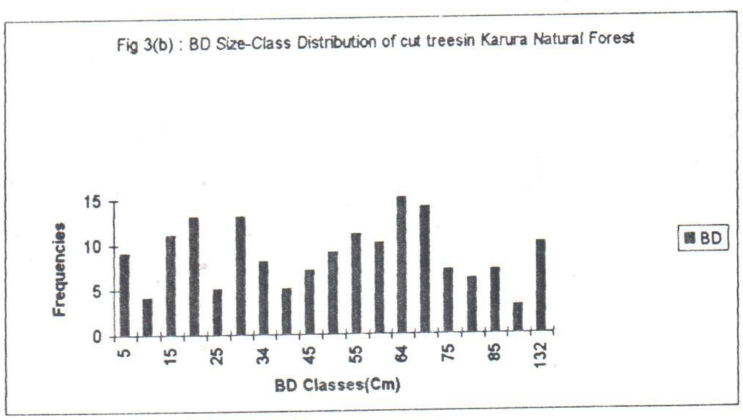


Fig 3(b) : BD Size-Class Distribution of cut treesin Karura Natural Forest

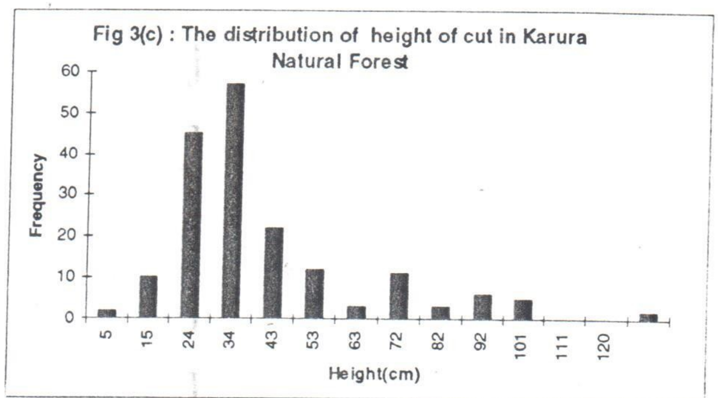


Fig 3(c) : The distribution of height of cut in Karura Natural Forest
Frequency
60
50
40
30
20
10
0
5
15
24
34
43
53
63
72
82
92
101
111
120
Height(cm)

Table 3: Summary of cutting methods used in different forest blocks

	Method of Cutting (Frequencies)			
BLOCK	Axe	Power Saw	Panga	Unknown
Karura	13	143	18	3
Karen	8	8	21	10
Kibera	30	2	17	1
Ololua	3	3	15	11
IPR	0	1	20	9

Table 4: The regenerations recorded in number of stems per diameter class

	Diameter Class (Cm)		
Forest Block	0-0.5	0.5-1.0	1.0-2.0
Karura	1750	162	192
IPR	82	89	79
Ololua	76	98	103
Kibera	1020	402	291
Karen	964	585	137

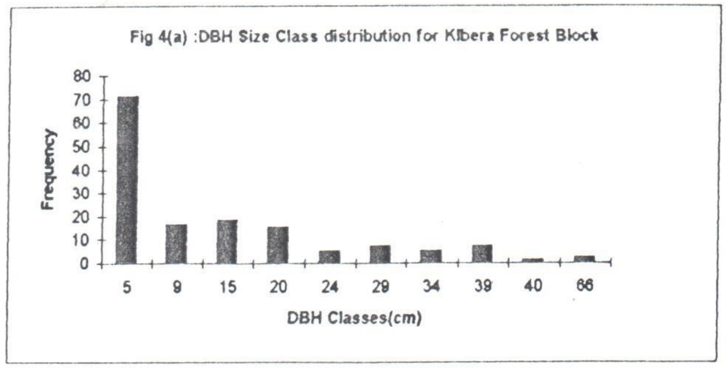


Fig 4(a) :DBH Size Class distribution for Kibera Forest Block

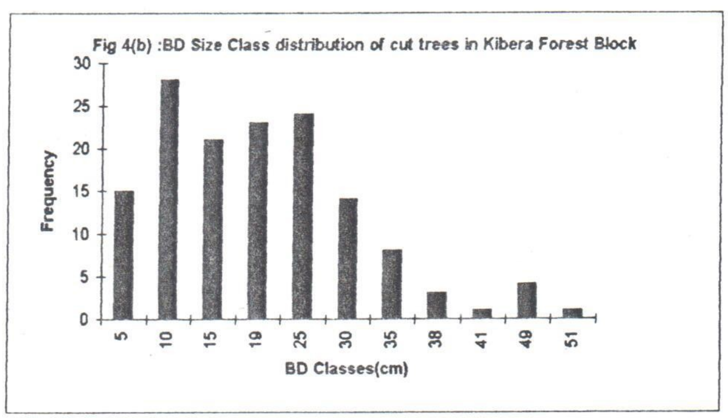
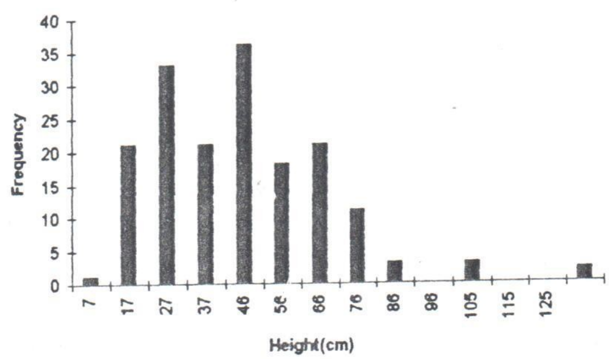


Fig 4(b) :BD Size Class distribution of cut trees in Kibera Forest Block

Fig 4(c):The distribution of height of cut in Kibera Forest Block



4.1.2.1 Kibera Block

The diameter at breast height (dbh) as an indication of population size/age structure of *B. huillensis* shows a poor distribution with only a fair representation in the small diameter individuals < 5 cm. (Table 4) Figure 4(c) shows the basal diameter class distribution of cut individuals in the Kibera block. Although exploitation is taking place on all size classes, there is indication of most intense impact on the medium sizes in the 10 - 25 cm basal diameter range. The predominant methods of harvesting these size class range were by axe and panga (machette) (Table 3).

Regeneration potential for *B. huillensis* in Kibera block was adequately represented with over 1000 seedlings with a fair distribution of seedlings in the 0.5 - 2.0 cm size classes (Table 4).

4.1.2.2 Langata (Karen) Block

Figure 5(a) shows that the diameter size class distribution of *B. huillensis* in Langata block is characterised by 'peaks' and 'valleys' signifying a population whose regeneration has suffered interruptions in seedling establishment. Like its neighbouring block Kibera, the Langata-Karen forest block is also under intensive human pressure as illustrated in the basal diameter size classes of the harvested individuals. (Fig. 5(c)). The block had also a fairly high potential of regeneration with good representation in the 0.5 - 1.0 cm stem diameters. There was however poor representation in the seedlings sizes > 1.0 cm. (Table 4).

4.1.3 Ololua Forest

The diameter size class distribution profiles of *B. huillensis* in Ololua was characterised by poor representation in the smaller individuals (2 - 7 cm diameters) and a skewed distribution in the larger size classes (between 30 - 45 cm. dbh) (Fig. 6(a)). There was absence of mature individuals of more than 50 cm (dbh). The only size classes with fair representation were intermediate size ranges between 10. - 15 cm (dbh), with a progressive decline towards the medium size classes.

Basal diameter of harvested individuals shows that impact is heavy on all size classes with preferential demand on the replacement (7 cm), the intermediate and medium classes (20 - 25 cm); all these size/class categories had been harvested mainly by panga (Table 3 and Fig. 6(b)).

Ololua had poor regeneration potential with very low density of seedlings and very few saplings. (Table 4).

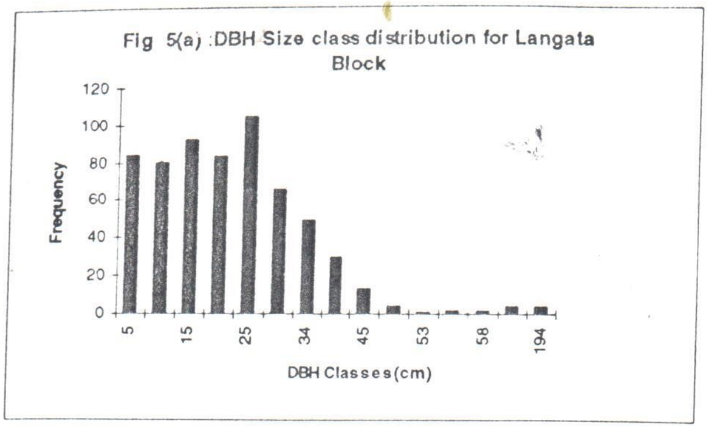


Fig 5(a) :DBH Size class distribution for Langata Block

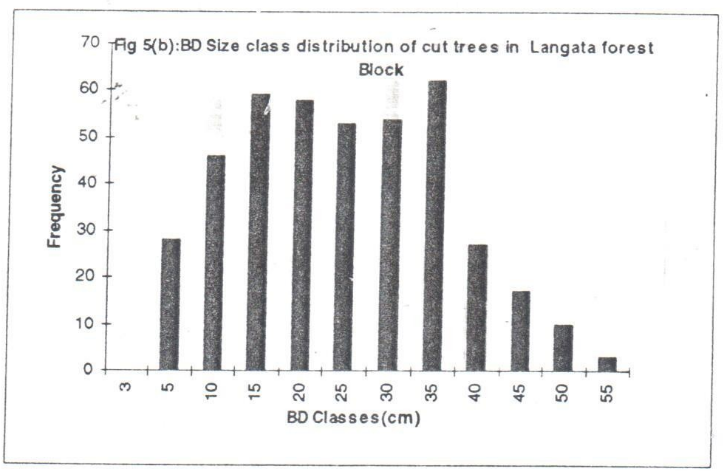


Fig 5(b):BD Size class distribution of cut trees in Langata forest Block

Fig 5(c) : The Distribution of height of cut for Langata Forest Block

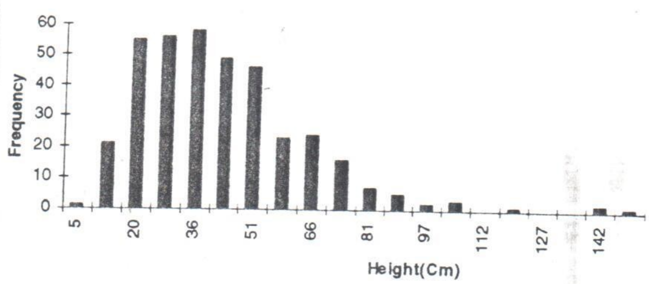


Fig 6(a): DBH Size class distribution for Ololua Forest Block

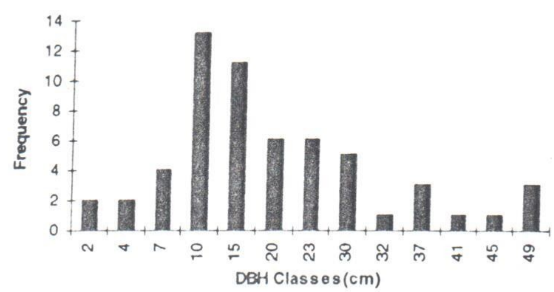


Fig 6(b): BD Size class distribution of cut trees in Ololua Forest Block

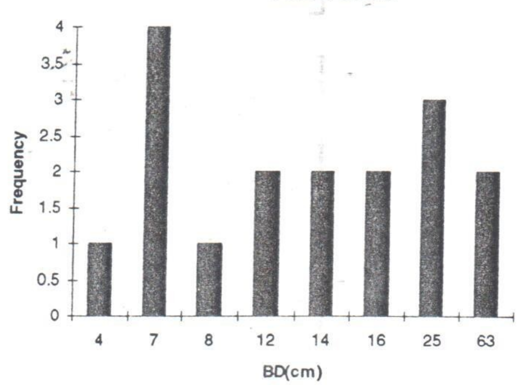


Fig 6(c) : The distribution of height of cut for Ololua forest

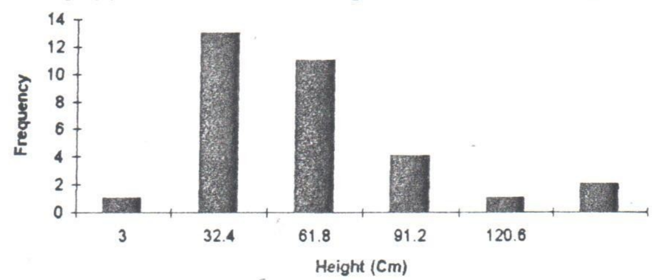


Fig 7(a): DBH Size class distribution for IPR Nature reserve

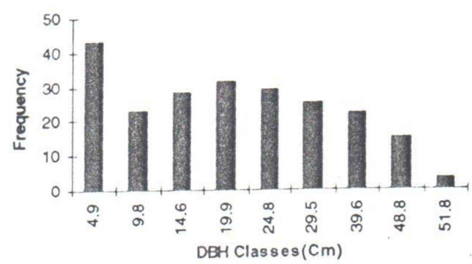


Fig 7(b): BD Size class distribution for IPR Nature reserve

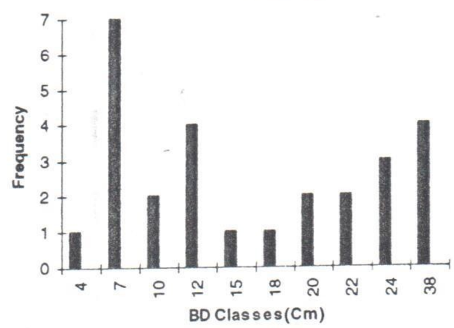
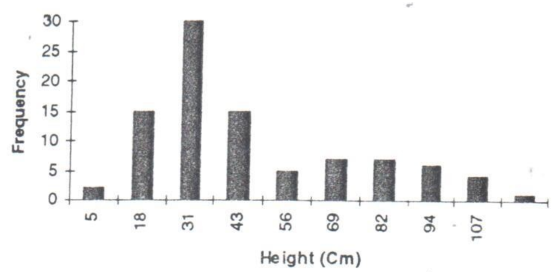


Fig 7(c) : The distribution of height of cut for IPR Nature Reserve



4.1.4 IPR (Institute of Primate Research) / Nature Reserve

This is part of the larger Ololua forest and lies adjacent to it. It is an exclusion zone, and has had total protection as a Nature Reserve since 1987.

Figure 7 (a) shows that diameter class distribution of *B. huillensis* in the forest is well represented in the small size-class category (5 cm diameters). There is however decline in the number of mature individuals > 40 cm (dbh).

Selective harvesting of smaller, replacement individuals (7 - 12 cm) and also the intermediate classes (> 20 cm bd) had occurred in the reserve Fig. 7(b). It was also observed that the fellings were fairly recent and were mainly made to clear the motor paths for the Institute's vehicles. Predominant method of felling was by panga (Table 3). There was evidence of flush regeneration occurring in all three size class categories (0.5 - 2.0 cm) (Table 4). This may be attributed to the protection the forest has been accorded since 1987.

5.0 DISCUSSION AND CONCLUSION

Indigenous trees fulfil many household needs by providing sources of food, medicines, fuelwood, building and construction materials; they also support a variety of wood-based industries.
In the upland dry, (semi-deciduous) forests in Central Kenya and elsewhere in East Africa, *Brachylaena huillensis* is the most important commercial tree (UNESCO 1973). The tree belongs to the family Compositae (= Asterceae), and it is the only wood species in the family to develop to timber size (Lind and Morrison, 1974). It is also dioecious (Beentje, 1994; Kigomo, 1990). The three upland forests (Karura, Ngong and Ololua) are located in areas which have experienced some of the most rapid human population growths in recent times, as Nairobi City and its environs continue to attract large immigrants from the rural areas searching for livelihood opportunities. These factors have caused considerable disturbance to the forests.

Impact assessment of the three forests indicated that *B. huillensis* is the most exploited hardwood in the forests. Past and current preferential demands on the various size classes have had significant effect on the species. In Karura, the diameter size class distribution profiles showed a fair representation in the smaller diameter classes however, the larger diameter size-classes > 50 were very poorly represented in the *B. huillensis* population. It was observed that most of the larger diameter individuals remaining in the forest were either deformed, excessively fluted or had been attacked by the ~~parasitic~~ epiphytic *Ficus thonningii*. Direct observation corroborated by data obtained from the Forest Department as well as anecdotal information from elder woodcarvers from Wamunyu and Nairobi co-operatives confirmed that Karura has been under pressure of selective felling for a long time; it had also the best stands of the largest diameter individuals as illustrated in Figure 4 (b). These classes formed the basis of wood-based industries in Nairobi and beyond, and this included woodcarving.
Currently the remaining small and medium size categories are being harvested to meet the household needs by the large populations around the forest. It was claimed by the forest officials that most of the settlements on the fringe of the forest were illegal, and the residents themselves besides exploiting *B. huillensis* for the fuel wood and building requirements, they were also involved in illegal logging for sale to timber merchants.

The Ngong Road forest comprises Kibera and Karen-Langata blocks which possess representative stands of *B. huillensis*. It is important to note that this forest is closest to the City Centre and is bordered on one side by one of the largest and heavily populated urban slums in Kenya, and by far the largest in Nairobi. Like other slums elsewhere, Kibera is characterised by large populations within the low-income bracket, majority of whom depend entirely on wood as their predominant energy source as well as for building. Secondly, the majority of houses within the slums are semi-permanent structures which require different diameter size classes for the ground foundation, laths (withies) and rafters which are then reinforced with mud, iron sheets or cardboard. Since the population in the slums is ever increasing, so does the demand for polewood for building the structures. It is important to note that these dwellings have to be constantly repaired, the frequency depending on weather conditions. Besides construction of the dwellings, polewoods mainly of *B. huillensis* is used for building the numerous roadside structures *(bandas)* in the area and used as sheds for selling fruits, vegetables and cigarettes. Firewood collection has a different dimensions in the Kibera blocks. Essentially, firewood collectors normally obtain temporary permits for collecting only dead wood, but in Kibera it was observed that the entire forest is devoid of any dead wood. As a result, it was observed that people were still obtaining the permits, but since there was no dead wood, they had reverted to direct cutting of live trees, excessive lopping of branches and stems, and bark ringing and debarking in order to enhance mortality. This was done with impunity, since they claimed they had the official document.

In addition, it was observed that there is tendency to over-exploit as the harvesters could visit the forests a couple of times a day. It was found out later that most harvesters obtained wood for two purposes; one, for direct use, and secondly, for sale in the fuelwood markets in the slum. Much of the fuelwood was also destined for the numerous illicit *Changaa* breweries along the river dividing the forest from the slums. Impact on Kibera forest is not confined to the "residents" slum dwellers alone; during the survey 3 different groups consisting of 19 women with kilo-loads of firewood were spotted heading in the opposite direction from Kibera. It was later learnt from a forest guard that they were regulars and came from the Riruta-Dagoretti area, some three kilometres away.

Because of the preferential demand on *B. huillensis*, it was observed that the harvesters were actually mining the resource by harvesting the stumps. The consequences of this practice are two-fold: one, stumps are potential trees, and by so mining they were causing damage to potential sources of coppices; two, stumps of *B. huillensis* are considered as potential carving materials as in areas where the carving resources had been depleted e.g. Kwa Vonza in Yatta Plateau near Wamunyu, carvers were seen going back into the woodlands to dig out the stumps of *Brachylaena huillensis* for use in carving. Similar practice was also observed with *Dalbergia melanoxylon* whose extensive roots are used for carving the popular letter openers and the "stick-men".

Disturbance and impact on the *B. huillensis* by livestock was observed mainly in Ngong Hills/Ololua and the Ngong Road forests. Disturbance was minimal in Karura. In the former sites we observed that livestock were grazing right inside the forests, although small antelopes were also observed. It became evident, however, that the domestic herbivores had the greatest impact on the *B. huillensis* through trampling and browsing on the juvenile plants. Although grazing livestock in the above sites is not unusual, because the Masaai are known to use the areas as dry season grazing refuge when there is drought in the plains, it then appeared that livestock movement in the forest is not adequately controlled. Further, in attempt to assess the general health of the forest, a subjective assessment of disturbance for each forest was determined based on observed frequency or levels of these disturbance indicators; browsing/grazing; logging/trampling tracks; footpaths; lopping; invasives/aliens; animal burrows; gaps/open canopies. All the forests, except the IPR/Natural Reserve where shown to be threatened by all the above observed disturbances, with Ngong Hills (Ololua), Kibera block of Ngong Road Forest in that decreasing order. The numerous gaps in the forests were observed being invaded by the noxious Lantana ? *sp.* which formed extensive under-storeys and were observed hindering the regeneration of *B. huillensis*. The gaps in turn were indicators of clear felling in the forests.

The study shows that the greatest impacts on the three Nairobi areas forests are emanating from human populations living near the forests as evidenced by their very high dependence on the forest resources for their daily needs. The problem of over-exploitation is projected to intensify and is further exacerbated by these factors:

- the recently liberalised economy means that the co-operative control is no longer tenable as more people are individually seeking and opening new markets for woodcarving abroad, as shown in export data in Phase I report. As a cottage industry it draws and will continue to attract a lot of jobless people, majority of whom are school leavers armed with less skills and marginal capital outlay for starting the business. Further, the rapidly rising population with the trend towards settling in forested areas implies that settling populations will consequently compete for the land and convert it to other uses leading to a decline in the total area of natural vegetation as a source of supply of carving species. The practice was observed to be rampant in several blocks of Ngong, Ololua and Karura forests where large areas of *Brachylaena* and *Croton* have been cleared for cultivation and residential expansion, with more plots earmarked for similar purposes.

reference: detail: in draft report ✓

- Kigomo (1994) in his study on rates of growth of *B. huillensis* in the 3 forests estimated that without intensive management inputs, the rotation period for the species is very slow under natural conditions with individuals reaching merchantable diameter sizes of 40 cm and 45 cm dbh after 100 and 130 years, respectively. From the foregoing, it is clear that at the current demand rate, the supply of *B. huillensis* in all the 3 forests is not sustainable. The problem of impending crisis caused by scarcity has long been realised by the resource users (carvers) who have in turn began experimenting with alternative species with some similar characteristics to these traditional ones. For example, the last couple of years the carvers have successfully adopted *Azadirachta indica* (Neem) as an alternative to *B. huillensis*, and is being marketed under the trade name, Mahogany. Besides the desirable physical attributes of the wood, it is relatively abundant along the coast, and has a shorter rotation period (15 - 20 years).

The observation that majority of relatively smaller (20 - 30 cm) diameter class of *B. huillensis* are reaching the co-operatives during the last survey confirms the fear that commercial incentives and selective demand for *B. huillensis* imply that despite the scarcity, heavy harvesting will continue as people are ready to take risks for the attractive prices the species fetch. Thus while *B. huillensis* remains valuable hardwood species for carving, its sustainability can still be managed through effective control of further harvesting in areas where its population is threatened for both the short-term and long-term. Experimentation with alternative species as well as diversification into the use of non-wood raw materials for handicrafts can be some of the conservation measures to be used to achieve sustainability.

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Limited Distribution

SUSTAINABLE DEVELOPMENT
OF
WOODCARVING INDUSTRY

IN

KENYA

TECHNICAL PROGRESS REPORT

JUNE - DECEMBER 1995

RAYMOND OBUNGA

NATIONAL MUSEUMS OF KENYA

1995

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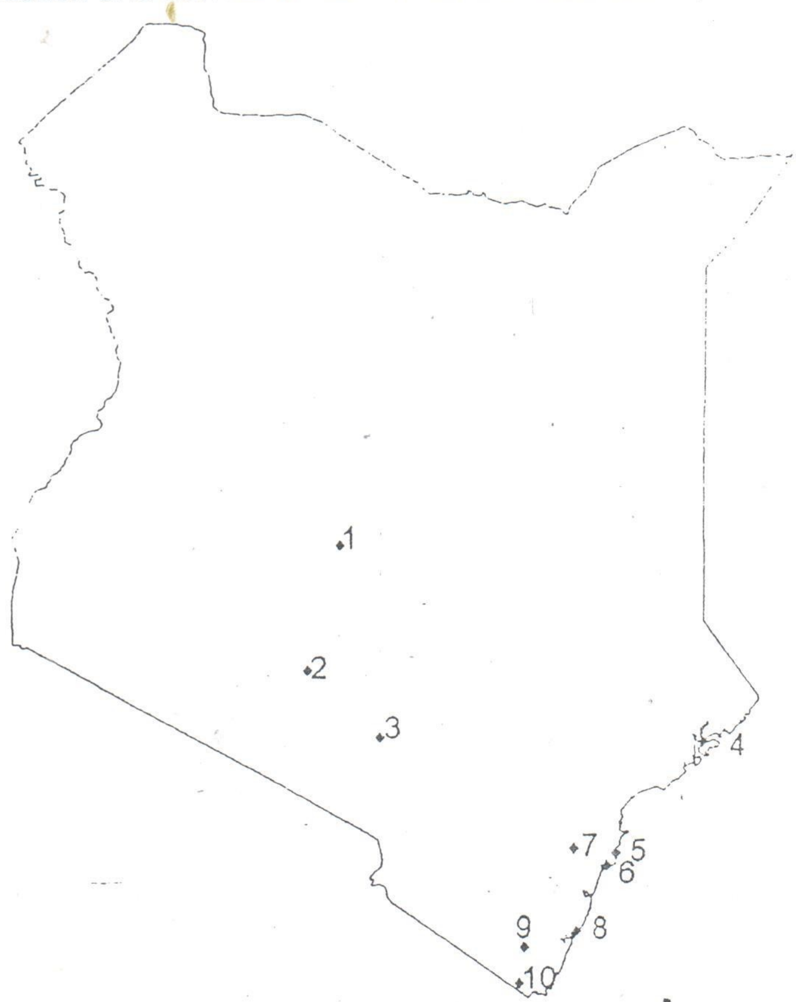


KEY:

1 Nanyuki
2 Nairobi
3 Machakos
4 Lamu
5 Malindi
6 Watamu
7 Kilifi
8 Mombasa
9 Kwale
10 Lungalunga

1.0 INTRODUCTION

In Kenya, the woodcarving industry serves as a significant source of income for many people. In recent years, however, the raw materials that form the foundation of this industry have become depleted, causing concern on two levels. First, many Kenyans who depend on revenue from woodcarvings are facing the reality of reduced earnings, and second, overexploitation of selected tree species is leading to widespread depletion of natural resources. In some cases, overharvest has led to local extinctions of valued species. Action is urgently required to address not only the conservation issues associated with the woodcarving industry, but also the needs of the families who rely on revenue from woodcarving to meet their daily economic requirements.

While the woodcarving industry is a visible and important sector of the Kenyan economy, its dynamics have not been extensively studied. In response to the growing problems facing its survival and that of the resource, five organisations namely, the National Museums of Kenya (NMK), the Kenya Forestry Research Institute (KEFRI), Kenya Energy Non-Governmental Organisation (KENGO), Kenya Crafts Co-operative Union (KCCU) and the Mennonite Central Committee (MCC), jointly planned a project in an effort to examine the current problems affecting woodcarvers, and to identify and propose actions that will make the woodcarving industry more sustainable. Each of the above collaborating institutions on the project have unique specific expertise to contribute to the different components of this interdisciplinary study.

This 2 year project being implemented under the auspicies of the National Museums of Kenya (NMK) is jointly funded by the People and Plants Initiative of the World Wide Fund for Nature (WWF), the United Nations Educational, Scientific and Cultural Organization (UNESCO), and the Royal Botanic Gardens, KEW (UK). The overall objective of the Initiative is to build up the capacity for work on the ethnobotany and resources

sustainable use of plants, mainly in the tropics. As an implementation strategy, the project was divided into 4 quarters of 6 months each.. During this first quarter (June - December 1995), the survey focused on the socio-economic interface of the woodcarving industry. The aim was to collect baseline information that would serve as a foundation for the subsequent phases of the project comprising quantitive resource assessment, propagation trials and finally, dissemination of resultant information to different interest groups as an ultimate means of creating awareness about the sustainability of the woodcarving industry.

The results presented here are not conclusive on the objectives of the first phase of the project; it became evident during the surveys that due to the wide scope of the objectives, some of the information and data were not going to be gathered at one go. Thus, in cases where information and data were lacking or felt inadequate, the process approach adopted in conducting the research will ensure that the gaps are filled or amended, as sound rapport already established with the informants and the woodcarving community continues to yield more findings in the future.

2. JUSTIFICATION

Kenya is endowed with a rich plant genetic resource base. Many Kenyans rely on the natural vegetation as a source of food, fuel, medicine, household implements and other products. The woodcarving industry is no exception, as the majority of the materials used originate from Kenya's forests and semi-arid woodlands.

The tree species valued for carving possess specific characteristics, and the preferred ones are close grained, and do not split or crack. The wood varies from being rather light in colour to dark brown or black. Several species are recognized as the most preferred, and subsequently are most in demand.

These species are *Brachylaena huillensis* (Muhuhu), *Dalbergia melanoxylon* (Mpingo, Ebony or or African Blackwood), and *Olea africana* (Mutamaiyu or African Olive). Other popular species include *Combretum schumanii* (Mkongolo/Mwaosi), *Terminalia brownii* (Muuku), *Terminalia prunioides* (Mutoo) and *Erythrina abyssinica* (Mukenea), among others.

The Kenyan woodcarving industry was borne out of the carving traditions of the Makonde of Tanzania and Mozambique, and became established in Kenya in the early 1920's. At this time, wood for carving was in ample supply. Since then though, there has been a remarkable decline in the amount of natural forest in Kenya, and hence a decreased supply of wood for carving. The main factor contributing to forest loss include a tripling of the population since 1950, migration to marginal areas estimated at 7 - 9% of the population over the past 20 years, indiscriminate land clearing, and the introduction of ill-suited agricultural methods originally intended for high-rainfall areas.

There are estimated to be approximately 50,000 woodcarvers in Kenya, working either independently or in co-operatives. Wood that was formerly obtained close to home is now scarce, and carvers must sometimes purchase their wood supplies from areas far removed from the carving centres, as in the case of Wamunyu, Mombasa and Malindi. This situation is in part due to the demand for certain species, but can be primarily attributed to multiple demands made on the resource; wood carvers must compete with users seeking fuel wood and material for fencing, furniture and construction. Additionally, as with most other wood users, the tendency is to mine the resource.

Lack of a clear management strategy for timber resources further compounds the problem. While Kenya has numerous gazetted forests in which harvest of dead and fallen timber is authorized with a permit, little attention has been given to species-specific management.

Forestry Department activities related to plantation development have chiefly involved the planting of exotic species such as Cypress (*Cupressus lusitanica*), Eucalyptus (*Eucalyptus spp.*), and Pine (*Pinus patula*). Although some plantations of indigenous species have been established, minimal effort has been dedicated to determining which indigenous species are most in demand by Kenyan timber users in the different sectors. Subsequently, the sectors of the timber industry that prefer indigenous species are facing the reality of reduced timber availability. For some sectors, such as the wood carving sector, this situation has become acute.

Efforts are urgently needed to bring this predicament to light, not only among the resource users who already are experiencing its effects, but also among the policy makers who have the power to act. By collecting and publicising accurate information on earnings accrued to the wood carving industry, which are now roughly estimated at US$10 million annually, the value of this industry to Kenyan economy will become apparent. Such information can then be used to channel the appropriate efforts into resource management, regulation, research and propagation in order to secure the future of this industry while addressing conservation and sustainable use of concerned species.

3.0 OBJECTIVES

The overall objectives was to raise awareness about the impending instability of the wood carving industry and to initiate actions amongst carvers, traders, the general public, consumers and policy makers that will lead to effective management of the resource and ultimately, the sustainability of the wood carving industry.

The specific objectives of Phase I of the project were to:

i) Identify the species in the wood carving industry, determine their preferences, key characteristics, distribution/source (s) and status.

ii) Identify the alternative species in current use, note their characteristics, distribution/source(s) and status.

iii) Establish the number of persons, businesses and trading organizations involved in internal and export trade in wood carving in Kenya.

iv) Collect information on the gender, cultural identity, age, socio-economic status of the wood carvers and the harvesters supplying them.

v) Quantify the volume of woodcarvings traded locally and from Kenya.

vi) Ascertain the current system of valuation, in terms of pricing along the marketing chain from first harvest to final sale, and if possible, determine the overall value of the trade.

4.0 METHODS

The study was conducted between 20th June and 15th December, 1995. Actual field work was preceded by an exploratory trip lasting 10 days to all the sites of the 6 woodcarving co-operative societies in Gikomba (Nairobi), Makindu, Mombasa, Malindi, Wamunyu and Nanyuki. The aims of the reconnaissance were to acquaint the research team with the co-operative officials and the members (wood carvers); to introduce and explain the objective and scope of the new project at an early stage; to identify future key informants and establish rapport with the general woodcarving community. The observations and points which emerged during this trip were useful in re-shaping the foci of the study, drawing the work plan,and also in establishing the methodology.

Participatory (PRA) approach complemented by formal questionnaires was employed throughout the study. The first stage began with consultations held with all the individuals from all the collaborating organisations. Background information on woodcarving as an art and industry was to be obtained through intensive literature search and review. However, this exercise did not yield much as there are apparently very few studies done on this subject in the region.

Open-ended and semi-structured interviews were conducted across a spectrum of people involved in the woodcarving industry covering Co-operative (wood carving) officials; wood carvers inside and outside the handicrafts union; handicraft/curio retailers and wholesalers; exporters; beach and street curio vendors; middle (wo)men; wood merchants and farmers; government officials in the Forestry; Customs and Excise; and Commerce Departments.

During these informal interviews which resemble ordinary conversations, predetermined questions on each aspect of the previously stated objectives were interwoven into the discussions to ensure that a holistic picture of the study was obtained as the exercise progressed.

Information on the identity of the wood carving species was obtained from a broad range of age groups (13 - 89 years) of carvers. At each site the carvers were asked to identify all the wood species present within the site at the time of the interview; they were then asked to mention other species normally used but were not present; and any other species known to be suitable for carving. The latter was provided mainly by the elder members who also provided a list of rare woodcarving species. The carvers provided the names of the species invariably in vernacular (Kamba, Giriama and Swahili) or known trade names eg.

Mahogany. It was realised during the exercise that some carvers uncertain with identity of the wood in use lumped all the similarly looking wood under one trade name. In such cases, special indepth sessions were held with the key informants in order to cross-verify the species in question for correctness; and where there was still no consensus on correct identity, specimens (samples) were collected and taken for further identification at the National Herbarium in Nairobi. It is important to note that during the study this sample identification were restricted to usual plants parts and reproductive parts.

Further information on the preferences was obtained through the matrix ranking procedure (McCracken, J.A. 1988; Martin, G.J. 1995), during which time the carvers' opinions were sought on the qualifying attributes, source(s), and the (perceived) status of each of the species. A list of names of alternative species in current use was also compiled using the same procedure.

Visits were made to locations of curio dealers and direct counts made of the number of persons, businesses and trade organizations dealing in wood sculptures. Additional interviews were conducted to establish the nature of the businesses and trade organisations (whether involved in internal, export, or both). Information on the number of people owning, operating or employed in each premises was also sought. This was particularly important as it would provide a final picture of the number of people who directly or indirectly derive their means of livelihood from the woodcarving industry.

Sociological information regarding the role of gender in the industry, age, ethnicity and socio-economic status of the wood carvers was obtained through participant observations and interviews. In order to establish the socio-economic status of the carvers, an analytical task of wealth ranking was used to select the households to be interviewed during the baseline and subsequently surveys. A group of elders at the Mombasa co-operative (all originally from Wamunyu) were asked to identify households from their communities in

Wamunyu. The provided names were written on cards to represent the households. The elders were then asked to put the cards into 3 or more piles according to their relative wealth. They were allowed to use their own criteria for ranking. Households targeted for interviews were randomly picked from the different piles of cards. It was not possible to get wood harvester(s) for the interviews. Subjects covered by interviews included: Household size and composition; land holding size; type of dwelling (house); livestock ownership; literacy level; household income, sources and expenditure; and carving resources and availability. Market valuation was done through further interviews with different categories of curio dealers and consumers at which time the inventory of different carved items (carvings) and their prices and sizes were noted for comparison.

In order to get a bigger picture of the dynamics of wood carving trade, visits were made to Wamunyu and Katangi centres on their respective market days where direct observations and further interviews were conducted with the curio vendors to establish: who was involved in the trade, noting sex and age; species of wood used for the carvings brought to the market; amounts/volumes traded and the prices, nature of customers (whether regular, occasional, middlemen, etc); rate of shift of the carvings and type of transaction (cash or barter). The vendors were also asked to state where they came from, mode and cost of their transportation and source of their raw materials. Volumes of wood and species used at each site was recorded by observing the number of lorries and tonnage arriving at each site. Where possible wood supply records were also scrutinized in order to verify total volumes used.

Finally, special visits were made to source areas at the Coast (Gonja, Lungalunga, Maluganji, Shimba Hills, Marenje, Arabuko Sokoke, Gede, Jilore), Central (Kabaru, Muringato, Kabirioni, Karura, Ngong) and Eastern (Chyulu Hills, Iveti Hills, Kwa Vonza - Tulimatwili). New source areas, particularly for *Dalbergia melanoxylon* in Kitui District including Mbitine, Enzou, Zombe, Mutomo, etc were visited to confirm presence and status of the carving species. Additional information in source areas not visited was obtained during discussions with the carvers, village elders, chiefs and government foresty officials.

5.0 ORIGIN AND PROFILE OF THE WOODCARVING CO-OPERATIVE SOCIETIES IN KENYA

5.1 Historical perspective

Woodcarving as a material culture among the Kamba traces its roots in Wamunyu village, Machakos District. That wood sculpture was not part of the Kamba culture and is only a fairly recent development ~~and~~ has been a disputed subject by many a researcher and art critics. Stout (1967) contends that woodcarving was introduced after the World War I from the present day Tanzania. Elkan (1958) and Ndeti (1972:143) concur that woodcarving among the Kamba pre-dates colonialism in Kenya.

According to anecdotal information recorded from Mzee Samson Ngati Ndisya (85 years old, founder member No. 5 of the Wamunyu Handicraft Co-operative Society), woodcarving both as a material culture and a commercial enterprise owes its legacy to one patriarch, Mzee Mutisya Munge, a recognized gifted carver (albeit introvert) who long before the arrival of Europeans in Wamunyu was already carving ceremonial wands and artifacts, elaborate walking sticks, mortars (*ndei*), traditional stools (*ivila*), small human head replicas for medicine horns and snuff containers, animal figures, bows, arrows, ladles and mizinga for bee keeping. Mzee Ndisya went on to prove the relative antiquity of wood sculpture among the Akamba by mentioning the early existence of traditional woodcarving tools which included adzes (*ngomo)*, types of knives, chisels (*ngesa*), axes (*ithoka*), pincers (*ngolia*), traditional hand drills (*kitheketho*) and whetstones (*eviya*).

According to Mzee Ndisya, what is however true about Mzee Mutisya Munge is that his exposure to the Makonde artisans in Tanganyika during his service in the carrier corps of the Kings African Riffles (KAR) between 1914 and 1918 not only greatly enriched his skills, but revealed to him the commercial potential of wood carvings. Thus, what may be said to have been a new development is the mass production of carving that started soon after the World WarI. Evidence of the Makonde influence on Akamba wood sculptures started only after the war, and can still be seen in the masks and (animal) figures.

Additional narrative by the late patriarch's clansmen states that commercialization of wood carving was gradually initiated and encouraged by a colonial District Commissioner (DC) who accidentally spotted one of his local chiefs with an ornate walking stick with human figure on the handle. Interest and inquiry traced the walking stick to Mutisya Munge, whom the DC paid about Kshs.20, to make a similar carving. Thereafter, more orders started coming through the DC from his friends, and there the trade started.*

The early years were reportedly closed and restricted as apprentices (peers) were reluctantly taken, mainly close kinsfolk. As time went on, more people became introduced to the new art and trade and soon the villagers developed their unique woodcarving skills, which were then transferred to the to the neighbouring villages. The specialized group of carvers started the mass production of carvings which found market in Eastern and Southern Africa. According to Troughear (1987), the real pitch for commercialization of carvings between 1930s and 1940s may have received stimuli from two sources: one, from the Depression when the colonial government made attempts to cut off middlemen in small-scale enterprises in Machakos District as a way of protecting the white settlers interests. This might have pushed even more Akamba to carve as the only source of income in an unfavourable environment and two, soldiers looking for souvenirs in East Africa during the World War II also provided incentive to hawkers to explore markets farther afield. Soon, the Kamba with history of long distance trading were spreading to every major town in Kenya, and during the 1950s they were in nearly every city in Eastern,

*The narrative was repeated by several old members of the co-operatives and especially those belonging to Mutisya Munge's clan of Akanga.

Central and Southern Africa. It is also important to note that this migration to the above regions was partly caused by Mau Mau emergency in the 1950s which placed restrictions on Africans movement. Mzee Nthei from Wamunyu (78 years old) remembers that the emergency pushed the carvers to obscure areas where they could not sell their wares. Like a few others of his generation he started carving at early age of about 10 years under the apprenticeship of his uncle; according to the traditions of the day, he spent several years in the processing line doing finishing touches before he could be allowed to touch an adze. He further confirmed that in the very early days, the tradional species used included *Terminalia* spinosa, *Melia volkensi, Cordia* sinesis and others. *Dalbergia melanoxylon* was little used during his days. When commercialisation reached its peak, in the 1940's and 1950'he witnessed the depletion of *Brachylaena huillensis* from Yatta area in the late 1950's and which compelled him to move to Nairobi where he started carving *Olea africana,* surplus from the Railways in use for steam engine, and *Brachyleana huillensis* from Karura and Ngong Forests between 1954 and 1958. When the emergency conditions became intolerable, he started hawking his carvings as far away as the present day Tanzania, Zimbabwe, Zambia, Zai re and Malawi, before finally settling as one of the first carving timber merchants in Wamunyu in the early sixties. Responding to the above stimuli at about the same time was a category of well organized operators of specialized curio shops run mainly by Asians and Europeans in Nairobi and Mombasa. The Akamba with no experience in the intricacies of international trade soon realized that they were at the receiving end of what was considered theirs as all the profits went elsewhere. Their major handicap was lack of common ground on which they could collectively articulate their interests as the majority of them were operating as individuals or in fragmented groups.

However, with the advent of independence, the new government started the process of promoting upcoming indigenous enterprises through the co-operative movement whose principal mandates among others, was to assist the members to market their produce. Thus, the first functional woodcarving co-operative industry was formed in 1968 in Mombasa, Table: Summary of woodcarving co-operatives showing the population and species used for carving

Co-operative Society + Population / Species in use	Dalbergia melanoxylon	Brachylaena huillensis	Combretum schumanii	Olea africana	Cordia sinensis	Terminalia brownii/ kilimandiscchariana	Terminalia prunoides	Melia volkensii	Azadirachta indica	Mangifera indica	Afzelia quanzensis	Brachystegia spiciformis	Manilkara sp	Xanthophylcum chalybeum	Others
Mombasa (Akamba) (6500)	✓	✓✓	✓	x	x	x	x	x	✓✓	✓✓	✓	x	x		x
Malindi (300)	✓	✓✓	✓	x	✓	x	x	✓	✓✓	✓✓	✓	✓	✓		x
Makindu (100)	✓	x	✓	✓✓	x	x	x	x	x	x	x	x	x		
Wamunyu (1200)	✓	✓✓	✓	x	✓	✓	✓	✓	x	x	x	x	x	x	
Nairobi (1000)	✓	✓✓	✓	x	x	x	x	x	x	x	x	x	x	x	x
Nanyuki (145)	✓	✓✓	✓	✓	✓	x	x	x	x	x	x	x	x	x	x
Lunga Lunga * (300)	✓	✓✓	✓	x	x	x	x	x	x	x	x	x	x		

✓✓ = Extensively used

* = Jua Kali Co-operative

OTHERS = Include Grevillea, Jacaranda, Pinus, Cedar, Melia azaderach and the large number of indigenous/spp. observed in use in Wamunyu and Malindi.

followed thereafter by several others. Below is a summary of profiles of the major woodcarving co-operative societies in Kenya.

5.2 The Akamba Woodcarving Co-operative Society, (Changamwe) Mombasa

Founded in 1968 as one of the first woodcarving co-operative societies with only 20 members, the society currently has some 3000 registered members. Working alongside these *bona fide* members are about 3,500 apprentices at varying levels of their mandatory 2 year training before they can register as members. Being one of the oldest and largest in terms of membership and area, the society exhibits features of a sophisticated and diversified industry in the following of its different units: Administrative; Wholesale shop for local retailers and exporters; Retail/showroom exclusively for tourists; Export; Bar and Restaurant; Guest House and a Canteen.

The Society also provides temporary employment to between 100 and 250 people who pay a fee of Kshs.35/= at the gate in order to undertake all sorts of odd jobs within the complex. Further, as a tourist attraction in its own right, tour guides, taxi drivers and tour companies earn substantial income by taking tourists to witness the famous carvers at work. Also, an assortment of tens of vendors and middle (wo)men visit the complex each day, selling their wares and buying curios, respectively. Among this workforce of members and part-timers are about 100 women who play a significant role in the industry's most vital unit, the finishing line, where the final touches (polishing, sand-papering, painting and dyeing, beading and other decorations) are done before curios are taken to the market. A highly specialized sub-unit of the finishing line manufactures carving tools (adzes, knives, axes, saws, chisels, and pincers).

The society originally obtained its wood from Lungi and Boni forests in Lamu district, and Arabuko Sokoke and Gede Forests in Kilifi District. Whereas the latter have been under ban from exploitation, access to Lamu District forests has been made difficult by rampant banditry in the area. As a result, the society relies on the supply of nearly 80% of all the wood it uses from Ngong and Karura forests, both near Nairobi. The wood is exclusively Muhugu *Brachylaena huillensis*. Claims by the society officials and carvers that some of the wood to the society originates from Nyeri District Forests could not be confirmed immediately. However, it's highly probable that the illegal logging in Nyeri forests must have a market in any one of the societies. In response to the acute shortage of the preferred carving wood at the coast, the society members have been experimenting with several alternative species, among which Mkilifi (Mwarubaini) *Azadiracta indica* has proved more successful. Possessing similar characteristics as *Muhugu*, it currently sells under the same trade name, Mahogany. It was noted that the *Mpingo Dalbergia melanoxylon* originates from Kwale District and Tanzania.

The society reportedly receives 2 lorry loads of logs each week, but our observation revealed that it receives far in excess of the stated tonnage. The society earns from its retail/showroom Kshs.7 million per month; Kshs.3 million per month from wholesale shop; and Kshs.3 million per year from the export section. The major destinations of the exports are USA, Britain and Germany. The Bar, Restaurant, Guest House and the Canteen combined fetch about Kshs.1 million per month.

The co-operative society (as is the entire carving industry) has been a preserve of the Kamba people. However, with the ever growing unemployment in Kenya, more people from other ethnic groups are turning to carving as a more reliable means of earning money. The Akamba co-operative society currently has the entire Mijikenda community comprising the nine sub-tribes, except the Digo; Kikuyus, Luos, Luhya and nationals from Uganda and Tanzania. The society also provides a large market to the local ancillary industries of hardware materials for the supply of quantities of dyes, paints, polishes, waxes, sand papers, files, hammers, and saws; scrap metal dealers also provide materials to the tool manufacturing unit. Large quantities of beads are used for decorative purposes in the industry as well.

5.3 Malindi Handicraft Co-operative Society

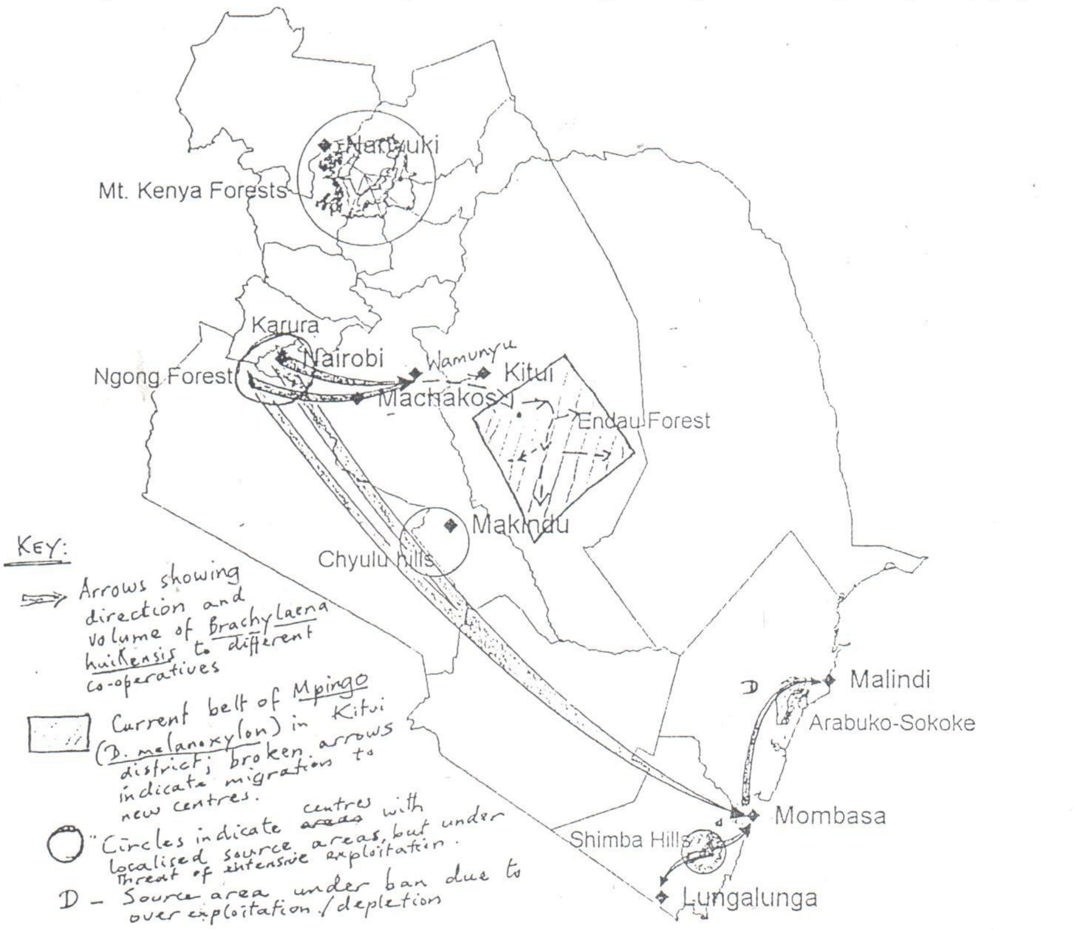
It was started in 1986 and has a membership of 300 people drawn from different ethnic groups, but with a predominance of the Kamba from Wamunyu, Machakos District.
The society had a license for selective felling of *Brachylaena huillensis* trees from Arabuko Sokoke Forest but this has since been revoked and with not other source of the preferred wood, the society is currently facing a scarcity crisis. The society occasionally obtains a license for removing firewood quality wood from the forest but this is not only unreliable, but also insufficient and of poor quality for carving. Consequently, the society has also resorted to experimenting with several alternative species, with the abundantly available Mkilifi *Azadirachta indica* more popular. It is important to note that the largest number of coastal species under trial as alternatives were recorded in Malindi.

The society sells about 5,000 pieces of carvings with a turnover of about Kshs.1 million per month from its retail/showroom. The exports are through the Mombasa (Akamba) or Nairobi co-operative societies. It was observed that many of the members sell their carvings outside the society where they receive instant cash for their carvings. There is only one woman carver in the society.

5.4 Nairobi (Gikomba) woodcarving Co-operative Society

Registered in 1970, it collapsed in 1978, and was revived in the same year under new management. It has some 1000 members out of which only about 300 are active (the number that regularly report to the co-operative and engage themselves in productive work). Alongside these *bona fide* members are about 50 apprentices. There are about 17 women

Figure 1: Map section showing the source areas and the production centres (wood carving co-operatives) they supply.



members; several women work temporarily within the finishing unit of the industry each day.

The society obtains all the *Brachylaena huillensis* wood it uses form the nearby Ngong and Karura Forests. Consignments of *Combretum schumanii* and *Olea africana* mainly for special order carvings are transported from Kyulu Hills. It reportedly uses about 16 lorry loads of timber per month (this figure greatly fluctuates according to demand). The society has an annual turnover of about Kshs.10 million, out of which about 70 per cent is from export. Major destinations are UK, USA, Canada, and recently South Africa. It was observed that the members of the society were using a variety of species including *Juniperus procera, Pinus lusitanica, Jacaranda mimosifolia, Grevillea robusta* for making household items like wooden bowls, ladles and sugar containers.

5.5 Wamunyu woodcarving Co-operative Society

Wamunyu Woodcarving Co-operative Society was registered in 1965 and has a current membership of 1198, majority of whom prefer to carve from their homesteads and bring the finished products to the co-operative showroom. The co-operative also markets all its products for export through the Nairobi co-operative. A large number of retailers and middle (wo)men converge at Wamunyu each day to buy finished and semi-finished curios from the co-operative showroom or directly from the carvers. The society sells about 5,000 pieces per month and earns about Kshs.2 million. The women members numbering about 25 are involved in the finishing line, as well as in the administration.

Wamunyu also receives its wood of mainly muhuhu *Brachylaena huillensis* from Ngong and Karura forecasts, both near Nairobi. Among the issues raised by the management officials and members of the co-operative were stiff competition, both internal and external, the latter especially from Asia (India), and the need to develop new product lines, as a way of countering the competition and maintaining market share.

It reportedly receives about 6 lorries of muhuhu per month, or about 60-100 lorries per year; also about 100-300 cartons of carvings each weighing average 46 kg. from the society are sold through the Nairobi co-operative. It was noted that the carvers were using several indigenous tree species obtained from local source areas.

5.6 Makindu Woodcarving Handicraft Co-op. Society

Founded in 1975 by a group of Akamba people who had migrated from Wamunyu area in response to resource scarcity, it was registered as a co-operative in 1982. It has a membership of 100 people (6 women and 94 men).

Unlike other societies which import the raw materials from elsewhere, Makindu has a nearby source of wood in the Kyulu Hills where the society extracts Mutamaiyu *Olea africana*, Mwa-osi *Combretum schumanii* and Itula *Commiphora spp*. Majority of carvings in the society are made from *Olea africana*, and the society markets all its products for exports through Nairobi and Mombasa Co-operatives. Undisclosed amount of carvings are also sold from its retail/showroom, mostly to middlemen, and a few tourists.

The society is currently confronted with the problem of transporting felled logs from the forest, as the terrain of sharp lava rocks requires more than an ordinary 4WD vehicle. At the time of the survey, the members were using a local farmer's tractor to fetch the logs from the forest. In the absence of the tractor, the carvers normally camp in the forest for upto one week and return with sackloads of semi-finished products which they then refine at the co-operative.

The greatest threat to the resource are illegal charcoal burners, who exclusively cut down *Olea africana* because of its superior quality charcoal. It was noted that orders from the charcoal come from far as Mombasa and Nairobi. The local forest department is reportedly so understaffed and demoralised that no policing is done in the forest; the villagers cited cases of corruption involving the forest officials and the charcoal burners/merchants. This is not restricted to Chyulu Hills forest as similar cases of corruption were observed in majority of the source areas visited.

A positive precedence by the co-operative is the initiation of a nursery of indigenous tree species in 1988. The members reported that since the start of the project they cannot meet the demand for some multipurpose seedlings as they are sold out as fast as they are ready for transplanting. This development is however frustrated by lack of water.

5.7 Nanyuki (Equator) Handicraft Co-operative Society

Started in 1985, it is the youngest woodcarving co-operative society with 145 members. Majority of wood used is *Brachylaena huillensis* from Mt. Kenya area. Other species include *Olea africana*, *Cordia sinesis*, and *Dalbergia melanoxylon*, *Cedar Juniperus procera* and *Cypress Cuppresus lusitanica* were used for making bowls, ladles and salad spoons.

The amount carved could not be immediately determined since the members claimed they get all their orders from Nairobi.

6.0 RESULTS

6.1 The number persons, business and trade organisations involved in internal and export trade in woodcarvings in Kenya. The survey identified that woodcarving industry in Kenya is tourist focused and has developed a 3-tiered pyramidal structure, with key participants in each segment categorised as follows:

Operators/owners of modern curio/souvenirs shops concentrated in top class hotels and prime downtown areas, usually referred to as the `tourist triangles' (Appendix I). Besides dominating the curio/souvenirs retail trade, they are also major players in the export trade. Their businesses are characterised by modern, spacious, well laid-out shops, security of tenure, insurance against thefts, fires, and security of stock procurement; their mortgaged property provide easy access to credits and bank loans and modern business perceptions translate into formal capital layout, higher license fees and overheads, which necessitate high quality goods with higher price tags. Additionally, members of this group are generally formally educated, have exposure and varying lengths of experience which further enables them to exploit wider and diversified markets locally and abroad. This category is dominated by the Asian community. The second category comprises stall holders huddled together in the City Market. Mostly illiterate and semi-literate, these people acquired a foothold in the business through long years in the same business. Majority held their stalls since the post-independence era and have had them inherited by their immediate family members.

In the same category as the above stall-holders are the members of *Jua Kali* (informal sector) proper. They range from the licensed sidewalk/alley/curio kiosks operators, to mobile vendors. They operate from small wooden, polythene covered or tin structures which suffer several disadvantages vis-a-vis the established downtown shops, hotels and city market stall holders. In most cases they are also manufacturers of their wares, or obtain them from the co-operatives, *Jua Kali* groups, or individual artisans and carvers, or middle (wo)men. These latter categories make up the bulk of indigenous woodcarving entrepreneurs, and to a large extent form the backbone of the woodcarving industry as the majority of carvers and dealers also fall within this group . Majority of the members lamented during the interviews that their businesses have never produced sufficient surplus and they cater mostly for survival needs and educating their children. The respondents also complained that the market has become extremely congested, and with stiff competition their turnovers keep declining. Worse still, with acute unemployment, each stall has to contend with supporting a larger number of family members, even as stocks take longer to shift.

Still within the last categories of licenced curio dealers, but more recent in development with even more significant impact on the trade are the Coast-based beach curio operators associations. This sub-category comprises the formerly mostly and illegitimate elements collectively referred to as "beach boys", and included ex-tour drivers and guides made redundant by economic recession; "Maasai warriors" hanging around hotels, lodges and beaches to be photographed for a fee; illegal currency changers, hustlers, or just genuine unemployed youths and school leavers aspiring for jobs in the tourism industry. Considered a general nuisance along the beaches, they were subjected to constant harassment, arrests and fines. In a bid to overcome their major handicap of being single and unstructured, they have recently organised themselves to form the Beach Curio Dealers Association, registered under the umbrella of a regulating body, the Mombasa and Coast Tourism Association, (MCTA). Under this management, they have formed groups each with between 30 - 300 members having operational territories along the coastal beaches stretching from as far as Malindi through Mombasa and Diani in South Coast. The total number of people involved was estimated at the time of the survey at about 4000. Operating across these boundaries are middle(wo)men, agents and curio trade brokers.

Table 1: Preliminary data on number of persons business and trade organisations involved in internal and export trade in woodcarvings in surveyed areas in Kenya. Et = Export trade; It = Internal trade.

Location/Centers surveyed	Category of persons, business and trade organisation	No. of business in each category	No. of people involved/ employed in each business	Remarks	
				Et	It
Nairobi Area:					
City Centre	Handicrafts Co-op	2	40	x	x
Gikomba	Curio/Gift shops	105	350	x	x
Kariobangi	City Market stallholders	4	150	x	x
Huruma	Sidewalk curio kiosks Kigali Road Curio stalls	550	3600		x
Westlands	Self Help Groups	4	470	x	x
Milimani	Jua Kali/Independent groups	5	228	x	x
	Backyard Factories	5	228	x	x
	Hotels Gifts shops	13	36	x	x
	Art Galleries/studios	13	150	x	x
	Middle (Wo)men/Agents		80	x	x
Nanyuki/Mt Kenya area	Cooperative	11	145		x
Nanyuki town	Curio Kiosk dealers	40	160		x
	Hotels				
	Sidewalk/street-vendors		42		x

Below is an account of distribution of different categories of players in the wood carving industry in the areas surveyed.

6.1.1 Nairobi

Table 1 illustrates the number of persons, business categories involved in curio trade within Nairobi. The hub of curio business is located within the "tourist triangle" (Appendix 1) in downtown Nairobi, an area demarcated by the length of Mama Ngina Street round the Hilton Hotel, up Kimathi Street across to City Market, then to Muindi Mbingu Street upto the corner of Mama Ngina Street (Figure 1). The 105 curio shops counted within this zone had a predominance of Asian owners - operators. Only 3 shops were operated by Africans (one had been in the business for over 10 years), though we could not confirm whether they were partnerships. It was established that the majority of the curio shops were exclusively owned or shared between family members or religious sects. More than 50 percent of the shops were diversified selling jewellery, soapstones, batiks, silver/copperware, exotic textiles, safari wear and assorted gift items. Further it was established that about 20 percent of the shops were also engaged in export trade or owners had the facilities for export. Backyard curio "factories" are indicators of curio export-oriented activities (owners usually hire on temporary basis artisans/carvers to do the finishing touches to bulk of semi-finished carvings meant for export); 3 such shops in town and another 2 in Westlands suburban area had about 120 people employed in their backyard factories; it is highly probable that more of such "factories" are tucked away within the confines of the residential/suburban areas, hidden from sight.

The 13 major hotels within the City Centre, Westlands and Hurlingham/Milimani area were found to have varying number of curio/gift shops within their premises and 10 percent of the total 36 curio businesses within these hotels had export facilities.

As would be expected, the stall holders and kiosk operators were most numerous with 550 stalls. Each of these stalls was operated or co-owned by average 4-5 persons, and majority had kinship affiliations. It is noteworthy that undisclosed number of mobile vendors, tour guides and mobile forex dealers are also members or co-owners of the majority of these curio kiosks. Thus, the number of people sharing the kiosks is far higher. A greater concentration of woodcarvers belonging to different licensed groups are based in Gikomba area of Nairobi. The 5 groups operating here have membership of some 2000 people. The art galleries and studios in Nairobi number about 13 and they keep a network with other major galleries worldwide. They employ special artisans/carvers who may be hired to work on specific carvings. These galleries are also exporters. However, majority of these galleries together with the shops owners/operators were reluctant to talk about their businesses, thus making it difficult to gauge the volumes sold and their values.

Nairobi's national and regional position as the centre of communication and seat of government departments makes it a logical focal point for business. This explains why the largest number of curio dealers (internal and export oriented) are concentrated in Nairobi. Information obtained from the carvers mainly in Gikomba area of Nairobi and the sidewalk curio kiosks operators confirmed that there is a large number of elusive middle (wo)men based in Nairobi who criss-cross the woodcarving country collecting carvings for their local and/or foreign clients. Their exact number however, could not be obtained; the figures given here are from groups of carvers who claimed to have regular buyers. The curio business in Nairobi alone has a large number of people who directly or indirectly benefit from it, and it was estimated that over 10000 people are supported by the trade.

6.1.2 Mombasa and Malindi

The scenario in the above 2 coastal towns in terms of ownership is not much different from Nairobi. The curio shops in Mombasa numbering about 93 were found situated within the popular tourist spot in Mombasa Islands around Fort Jesus, Old Town, Great Tusks Area

Table 2: Preliminary data on number of persons business and trade organisations involved in internal and export trade in woodcarvings in surveyed areas in Kenya. Et = Export trade; It = Internal trade.

Location/Centers surveyed	Category of persons, business and trade organisation	No. of business in each category	No. of people involved/ employed in each business	Remarks	
				Et	It
Mombasa Area:					
Changamwe (Akamba)	Handcrafts co-op	2	6515	x	x
Mombasa Island	Curio/gift shops	93	280	x	x
North Coast	Self Help Groups	2	440	x	x
South Coast	Backyard factories	10	120	x	x
Lunga Lunga	Artyard factories	10	120	x	x
Interior (Samburu, Taru, Mackinnon Road, Buchuma, Voi)	Juakali/ Independent groups	25	3000		x
	Curios kiosk dealers, Street vendors, Beach curio vendors	108	4200		x
	Part time carvers		750		x
	Hotel Gifts shops	40	120		X
	Middle (wo)men /agents		50	x	x
Malindi and Environs					
Malindi Downtown	Handicraft co-op	1	300		x
Malindi South Beaches	Jua kali/Independent groups	5	1250		x
Blue Bay Area	Curio gift shops	33	120	x	x
Watamu town	Backyard factories	5	200	x	x
	Art Galleries/studios	4	30	x	x
	Curio Kiosk dealers	8	1800	x	x
	Beach vendors	51	200		x
	Hotels	18	70		x
	Middle (wo)men0/agents		15	x	x

and Biashara Street. In the North Coast: Bamburi, Nyali, Serena and Mtwapa; South Coast: in Ukunda/Diaini area. In Malindi: the "Tourist Square" of downtown Malindi shopping complex. In Mombasa Island, the business was predominantly Asian-owned (90%); in Malindi these was a large Italian investment and out of the 33 curio shops, nearly 40% had Italian connection in ownership.

The largest concentration of curio kiosks were found at the Coast, mostly along the beaches, (Table 2). As mentioned in the previous paragraph, these beach curio operators associations are organised into groups with varying membership and they control all the hawking business along the coastline (beaches) from Malindi to Diani (Ukunda). Like their Nairobi counterparts, the curios dealers at the Coast are diversified and the deal in assortment of handicrafts and gifts items. A remarkable feature about the curio kiosks is their rate of proliferation. For example, about one month after the surveys in Nairobi city centre, while walking along a street recently cleared of garbage we came across an new row of 17 curio kiosks already constructed and stocked, while others (6) were coming up. Majority of the owners were starting the business for their first time, while a few others were just expanding their operations from other sites in the city. A similar scene was encountered in Diani area, along the Diani shopping complex a re-visit in mid of last November revealed that 7 more curio kiosks had been added along the road, each with an average of 6 people in partnership. Circumstantial evidence further confirmed that more than 200 people had already joined the Diani Beaches Curio Operators Associations since last July survey. Assuming that the phenomenon is also similarly occurring in Malindi, Watamu, Mtwapa and North Coast (Mombasa) beaches, then we have a hypothetical recruitment rate within the industry of more than 300 people per month, at the coast alone. It is worthy of note that the survey did not cover most beach hotels in Mombasa area, Diani and Malindi. Also not surveyed, yet with significant tourist development were Kikambala and Kilifi town beaches, as were carving areas in Kwale District (Godo, Kibaoni, Mwangulu, Mwereni etc) due to logistical constraints. However, woodcarving as an industry provides employment and source of livelihood to over 70,000 peeople at the Coast alone.

Table 3 : Preliminary data on number of persons business and trade organisations involved in internal and export trade in woodcarvings in surveyed areas in Kenya . Et = Export trade; It = Internal trade.

Location/Centers surveyed	Category of persons, business and trade organisation	No. of business in each category	No. of people involved/ employed in each business	Remarks	
				Et	It
(UKAMBANI) Wamunyu and Environs:					
Wamunyu/Katangi/	Handicraft co-op	2	1600		x
Yathui/Lema/ Maanzomi	Market based/Juakali groups	50	4500		x
Savu/Mwasua/ Kilembwa	Village based carvers (Wamunyu)		5000		x
Kilaatu/Kiliu/Chani	Village carvers (Katangi)		1500		x
Kinyaata/Wetaa/Ikombe	Village carvers (Yathui)		800		x
Masinga/Matuu/Kwa Vonza	Part-time/Seasonal carvers		2000		x
Tiva/Senda /Kithito	Curio stockist	25	800	x	x
	Timber merchants	10	120	x	x
	Middle(wo)men/agents		120	x	x
	Not surveyed (Carvers, dealers, middlemen, etc)	50	>3000		
Kitui Area & Environs					
Mbitine/Enzou/Musaa,	Exclusively Mpingo carvers and dealers		>2500		x
Kithuke/Ikanga/Ikongwe					
Nguuri/Kavinguri/Uwe					
Kabati/Kilamba/Endau					
Mutomo/Zambani/Zombe Centers					
Makindu and Environs					
Mtito Andei	Handicraft Co-op	1	100		x
Kibwezi	Independent groups/ Vendors	13	2500	x	x
Mbui Nzau	Middle(wo)men/agents			x	x

6.1.3 Wamunyu and Kitui

Table 3 illustrates the spectrum of wood carvers and curio dealers in Wamunyu and Kitui. Unlike the other study sites previously mentioned, Wamunyu has got the highest concentration of wood carvers in Kenya, and therefore the largest number of people who virtually depend on woodcarving for a living. In contrast, there are very few, locally based dealers in woodcarvings in Wamunyu. In fact the business in woodcarving is dominated by 15 individuals, half of them are family members.

Wamunyu merits special mention not only as the cradle of the art and industry of wood carving in Kenya, but also because of the unique way in which the production of woodcarving has evolved and is organised in the entire administrative location. The following is a summary of categories of ownership and organisation of woodcarving business in Wamunyu.

Household/Homestead based business:

Here the entire family is involved in the production with the labour differentiated according to gender: the male family members exclusively do the carving, while the female are involved in providing the finishing touches. The members usually have a shed within the compound where the initial carving is done, but the finishing may be done within the confines of dwelling houses. The members also work alternately: while some male carve, others do the marketing of the finished products. The female members invariably divide their time between `finishing' and household chores, which may be done simultaneously. It appeared that the industry evolved from this mode of production; majority of households in Wamunyu area are still involved in this kind of production. The advantage of this, according to the members, is that it ensures steady supply of income; also, all the resources are pooled together as a security against bad times.

Individual Groups:

Are based in villages or market places and in this case each member produces carvings which he sells for personal benefit. It was observed that this category embraced all age groups of males ranging from primary schools to elders (9 - 64 years). Some of the carvers are famous craftsmen, and by this virtue, await orders from regular clients who bring orders to the homes/market centres for specific carvings. The members of this system claimed that it gives them degree of freedom and flexibility since as an individual he can engage in other non-carving businesses as well, besides making independent decision on prices of his products.

"Jua Kali" Groups:

Are parallel production units to the co-operatives with members between 10 - 500 usually drawn from similar clans, and are of same age groups. Many of these groups were observed to be coming up all over Ukambani and the members, some of them from the mainstream co-operatives, claimed that the groups don't suffer the stagnating politics common in the woodcarving co-operatives. Moreover, they are able to identify markets for their products and are flexible with prices of their items.

Market Centre - based company:

Is usually owned by one person who is also the manager. It was observed that the number of workers engaged was determined by volume of orders received or the prevailing market demand, as well as capital availability. There is job differentiation in the number people employed here. Also, the owner is a stockist of curios and has one or more workshops separate or combined with a display or storeroom. Majority of the workers are women in the finishing line. This type of operation was noted to be a new trend among former carvers who have "retired", and is spreading fast in Wamunyu and other neighbouring centres like Katangi.

Curio Stockist/exporters:

Are exclusively non-manufacturers (but themselves former carvers) who specialize in buying finished and semi-finished carvings from the villagers and resell them to the dealers at a profit. This type of business was also noted to be involved in direct export of curios, and in Wamunyu, it plays a significant role in employing a large number of women along the finishing line. Also, it serves as a great outlet for many carvers who would otherwise have to travel far to look for markets; the carvers are paid instant cash for any category of their carvings. This type of business was noted to be dominated by 15 businessmen in Wamunyu; the largest had 2 storerooms and 2 workshops, employing a total of about 300 people, majority being women.

Wood merchants - cum backyard factory owners:

Have mutual arrangements with the carvers who may lack capital for buying wood but have large orders to fill. In this case the carvers use the merchants wood to fill his order(s), but payment is made to the merchant in the form of extra carvings. In another category the merchant hires craftsmen who are then paid on piece-work or daily wage basis. Technically, the merchant is running more than one business, with resultant enormous profits. Out of the 11 wood merchants in Wamunyu 7 are in this kind of business.

The organisation of woodcarving business in Wamunyu area is centred around households and among family members; the majority of the carvers, be they in te co-operative, or *Jua Kali* groups the operation is along family affiliations. In order to prove the claim that every male in Wamunyu area is involved in woodcarving, a total of 9 homesteads were randomly selected along a village transect radiating from Wamunyu centre northwards towards Savu trading centre. The survey did not only prove that over 90 per cent of the population is engaged in wood carving but also revealed the organisation and distribution of the production units, which transverse different administrative boundaries, with several tens to hundreds of people making up a unit. Thus Wamunyu as the centre has over 20 production units (satellites) up to a radius of 50 km. Table 3 shows only the few centres which were visited. It is important to note that majority of homesteads have more than one shed where the different members converge in groups or individually to carve. In areas which are far flung from Wamunyu trading centre and where transportation of raw materials for carving is impossible or not cost effective, members of households prefer to travel to Wamunyu where they often have rented rooms or makeshift sheds specifically for carving. Thus, the figures given should be interpreted with caution as the real figures are certainly higher.

This concentration of resource users in one area over several generations has serious implications on the resource base, considering the fact that Wamunyu area itself is a semi arid zone. The commercialisation of what was originally a material culture has had a devastating impact on the indigenous tree species, and the carving wood now has to be imported from other areas.

Since *Mpingo Dalbergia melanoxlylon* remains an all time favourite of the carvers, new source area have been discovered in the neighbouring Kitui district and surveys conducted in 5 trading centres (Mbitine, Zombe, Zambani,Ikutha and Mutomo) showed that the migration to this new source area started in the early 1970s, but the greatest number of people began to move in in the mid 1980s. Each of these production centres have groups of 8-150 carvers who work together in same sheds. To illustrate the rate of migration, Daniel Mutune (32 years old), and one of the pioneer migrants to Mbitine in 1974 stated that all the members of his group that moved with him have already moved farther eastwards into new *Mpingo* zones. Spot measure of the diameters of the *Mpingo* logs found in the shades indicated that carvers are using relatively large trees of above 30cm (basal diameter). Direct count of carvers in the areas visited revealed that there are some 1800 people. An estimated number higher than the latter was reported by the carvers to be in areas which could not be visited during the survey. It is important to note that most of the *Mpingo* carvers in Kitui have regular customers who collect their orders periodically. It was also observed that a large number of middle (wo)men visit the market centres, especially on market days to buy large quantities of *Mpingo* carvings.

6.1.4 Nanyuki (Equator)

Although it is the latest (started in 1985), it is by no means inactive as it is located within a prime tourist circuit. The carvers are drawn mainly from Wamunyu area with a few from Makueni. The majority of sidewalk/street vendors were Kikuyus from the Mt. Kenya area and were all youths. Out of the 145 co-operative members, only half the figure was active within the co-operative; the rest were claimed to be co-owners of the curio kiosks. Nanyuki/Equator, which incorporates Mt. Kenya and Nyeri area has a number of large top class tourist hotels within whose premises are curio/handcraft gift shops. However, due to logistical constraints and the scattered nature of the hotels and resorts, no attempt was made to extend the survey to the hotels. Nevertheless, there are over 10 top class hotels and camping resorts scattered around Mt. Kenya zone and it is assumed that they all have curio gifts shops and a number of employees. During the survey, a number of middle men (regular clients to the co-operative) were encountered negotiating for a special consignments of large animal figures. It could not however be established whether they were agents for local dealers or exporters or were exporters themselves.

Other Areas

Reports of presence of woodcarvers and curio dealers in tourist spots such as Kilifi town area, Kikambala and Mtwapa could not be confirmed due to logistical constraints, although a group of carvers were observed in the latter centre on our way from Malindi. Considering the rate of growth of tourist infrastructures (hotels, etc) in these areas and the habit of carvers and dealers to follow their clients, a guestimate of some 1000 people could be involved in curio trade as carvers and dealers, or both, in the above mentioned centres.

Other areas which were not visited to confirm the reports of presence of carvers are Kibaoni, Perani, Kikoneni, Mwangulu and Mwereni in Kwale district. Also included are Namanga and other remote places in Masai Mara. Thus, the figure of dealers and carvers is much higher.

Dependency ratio is very high among wood carvers. In both Mombasa and Wamunyu the older age groups (40-60 years) had average 6-7 dependants including family members (household) and extended family members. The youths had at least 4 people to support. In Nairobi, the kiosk curio dealers had average 4 people to support. Majority of elders interviewed (80%) had larger families (polygamous) averaging 9. We used the average of 7 across the entire wood carving community to provide estimates of number of people dependant on woodcarving to be about 350,000.

6.2 Cultural identity, gender, age and socio-economic status of the woodcarvers and harvester supplying them - with respect to the Akamba of Machakos District.

6.2.1 Cultural identity

Although modernisation had influenced the- structure of many social organisations within African communities, (traditional) social institutions still guide human behaviour, social relations and conduct within the majority of African societies. These social organisations are just as diverse as the societies, and appear in different forms.

The Akamba belong to the Eastern Bantu cluster and like other ethnic groups in Kenya, they are identified by the clan (*mbai*), the family (*musyi*), the village (*utui*) and overall, the social stratification within the tribe. There are 25 major clans in the entire Machakos District and other minor ones (James Nthei, pers. communication). Each clan name has specific meaning within the Kamba community. The clan, although highly decentralised is the administrative body of the community and all crucial decisions affecting the community must be deliberated upon collectively by the clan elders. Clan leadership is often selected by *Nzama,* a special group of elders, and is based on honesty and wisdom, among other qualities. All matters affecting the clan are addressed by the *Nzama.* Within the framework of modern administration, the structural arrangement of the clan leadership has drastically changed, with the leadership and organisation shifted from the village level to the national level. There is a national clan chairman who heads the clan nationwide and is selected by all the clan leaders (elders). The function of this national chairman is to co-ordinate social and welfare programmes relating to the clan members, including burials, circumcision and marriage ceremonies. He also presides over disputes. There is a high degree of communalism among the members of a clan, especially when it comes to welfare efforts such as raising school fees, burials, and marriages, etc.

The family (*musyi*) of the Akamba, like in majority of African communities was characterised by the extended family system. This cluster traces it descent from a common totemic ancestor that formed the clan (Akonga, 1982). The family was headed by a man who in most cases polygamous. There were also cases of polygynous families (Ndeti, 1972). The division of labour within the household was well defined: the wife and the daughters did the cooking and other household chores, while the men were engaged in hunting and herding livestock. In most cases, the wife of the eldest son did the cooking. The entire family stayed together, and ate together. All the property of the family belonged to the family head; the son was entitled to property only after building his own hut. The youth (boys) received informal education in the evening from old men when they gathered in the *thome*. The young girls underwent a more rigorous form of informal education and a series of initiations, given by the elderly female folk.

The kinship system amongst the Akamba of Machakos was polygamous and characterised by extended family system. In the event of death of the household head, the eldest son of the first wife assumed responsibility. At the village level, each clan had its own leader, *Mutumia*; a village had people from different clans, and a group of clan elders comprised the council of elders, *atumia*, which was the highest administrative body. To enter the council of elders one had to be honest, wise and charismatic. The elders were responsible for general organisation of all the tribal affairs.

The Akamba culture, like any other, is dynamic rather than static; as a people who have been on the move (though not in a nomadic pastoralist sense) for centuries due to the marginal nature of their land, they have not lived in cultural vaccums wherever they have had to settle. Thus, the social institutions affecting their daily lives have had to undergo transformations. Some of these changes are evident in the current designs of Akamba carvings with infusions of different cultures particularly the Makonde of Tanzania.

6.2.2 Gender

Wood carving industry in Kenya was founded and built on patriarchal traditions, and over the years distinct role of the sexes has developed. The industry has been, and is still dominated by men in all aspects.

The carvers are exclusively men and even in the finishing unit, where women in the industry are restricted to, is still a male domain. On asking why women are not found within the production (carving) unit of the industry the women replied that the men "do not like it". Some of the women surprisingly even demonstrated their skills in carving, but stressed that they are only "allowed" by the menfolk to do the finishing touches to carvings turned out by the majority men. This means that a woman may know how to carve but cannot benefit from her skill because it has become perceived as a custom and tradition for them not carve. One exception was a woman carver in the Malindi Co-operative Society who carves among the men. The criteria and circumstances that led to her acceptance among the men are just as unique. It is not easy to state whether the industry discriminates against, and exploits women, but a few points which have long been among contentious subjects in the feminist paradigm stand out. One, an observation in Mombasa Co-op. Society revealed that the majority of the less than 3 per cent of the women who make up the workforce and restricted to the finishing line of the industry were either divorced, single mothers, widowed or suffered some serious social problem. Although the system of payment based on piece-work ensured that they got spot cash for each finished item, they still put in more hours than the men in the same unit per any given day and had virtually no "leisure" time like the men, majority of who routinely worked the normal 7 a.m. to 6 p.m. time, and thereafter enjoyed themselves till past midnight, in the nearby night clubs. Esther Ndunge (32 years), a single mother of 2 school going children narrated her story which is shared by nearly all her female colleagues: she works 13 - 15 hours daily, seven days a week, and did a double job every minute of the day looking after the household and children while working on her client's pieces of carvings which she often has to carry home. Depending on how fast and efficient Esther and her colleagues can finish their pieces, they may each earn upto about Kshs.3,000/- per day. But a larger percentage of this seemingly large sum of money goes back to cover several overheads, for she and her colleagues must buy their own finishing materials (e.g. paints, dyes, polish, strings, beads, etc); others go into food, drugs, an occasional/permanent house maid, and the inevitable extended family member(s), often school going or a jobless youth. In the end Esther has nothing or very little to save.

In Wamuyu, the 13 workshops individually owned and operated within the market centre employed the largest number of women in their finishing line (each workshop had between 50 - 70 women workers, the number which fluctuates with the volume of orders received or market demand); the majority of them were in the same social predicament like their Mombasa counterparts with additional cases of large numbers of school dropouts. In Wamunyu it was not possible to determine the system of payment and how much they earned, but it was evident majority were related to, or were largely drawn from the clan of the owners of the workshops. This kind of association implies that the kind of patronage given by the male owner ensures that the women do not earn their worth. Whereas there was a large proportion of women operating, jointly or individually, the city curio stalls and sidewalk curio kiosks in Nairobi and Mombasa, the beach curio kiosks at the Coast were exclusively owned/operated by men. Where women operated alongside men in the same kiosks they traded only in textiles, batiks and jewellery. There appears to be a case of strong gender differentiation in the woodcarving industry.

The study however revealed that the women play a significant role, though largely "invisible", to maintain the carving industry. The woodcarvers are highly mobile and live outside their home areas most of the time. However, their wives continue to produce the families' subsistence on the characteristic marginal land and also weather other rural based hardships. Further, most of the investments like retail businesses and groceries around Wamuyu are run by women whose husbands occasionally send remittances to maintain the village based enterprises. A high proportion of households were technically headed by women who have to make all the decisions in the absence of their husbands.

In 2 villages in Wamuyu and Katangi centres, a survey revealed that more than 50% of the households were run by women whose husbands were absent migrant carvers most the time; among these, others claimed they feel deserted, since they have not seen/heard from their husbands for over a decade.

On a more positive side is the recent emergence of women entrepreneurs mainly from Wamuyu area who are breaking from the tradition of patronage and domination by men in the carving industry. Armed with little capital saved from previous work in carving business or obtained from women self-help (*Mwethya*) groups as soft credit, a large number of women have turned to purchasing large volumes of woodcarvings from villages which they then transport to Nairobi or Mombasa for sale at handsome profits. Others have joined the lucrative export bandwagon, as Kenya External Trade authority (KETA) confirmed that some of the newly expanded markets for curios in the former Eastern bloc countries have been opened solely by the women. Though the volumes and values exported are insignificant compared to exports to the traditional North America and Western European markets, it does show that the wood carving industry is headed for some aggressive changes in so far as the women's contribution is concerned.

6.2.3 Age

The woodcarving industry embraces age groups ranging between 9 and 89 years old. Within the co-operatives, the youngest apprentice and oldest carver was found to be 13 and 89 years old, respectively. The apprentice was still attending primary school but assists his grandfather during vacations. The grandfather (aged 67) claimed to have started carving at the age of about 16 years.

In Wamuyu, carving is evidently part of everyday life as well as an occupation. A visit to the market place confirmed earlier anecdotal information about early primary school children starting to carve in order to boost family income. Among the woodcarving vendors in the market were primary school boys selling fairly turned carvings made from locally available *Boscia augustifolia* and *Commiphora spp.* wood. Below is an age composition of a sample population from Wamuyu.

Age Group	% Share
0 - 14	54.00
15 - 59	40.00
60 +	6.00
Total	100.00

The wood carving community in Wamuyu is characterised by large proportion of young people aged less than 15 years. This rapidly growing young and dependant population poses serious social, economic and ecological implications, especially when viewed in the context of the already marginal nature of the surrounding environment and the scarce natural resources. Further, the above proportion give a very high age dependency ratio which is not favourable for sustainable development.

6.2.4 Socio-economic status:

The samples for interviews were households located in Wamunyu area (Ndeini). Majority of interviews were conducted with the household members (heads or representatives) of the households at their places of work. Out of 24 households selected 7 were interviewed within their homes during a transect walk in Ndeini - Kilembwa - Savu area in Wamunyu location. Majority of the households (5) radiated from Wamunyu trading centre, northwards towards the Yatta plateau ending in Savu centre.

Household sizes vary between 4 and 42 persons with an avarage size of 12. Household composition ranges from single nuclear to extended families composed of several generations; average land (plots) holdings also vary considerably with the sizes of plots declining as one moves nearer to Wamunyu centre. It was observed the mid-younger generation households (age range 28-40) tend to have smaller plots averaging about 2 acres with semi-permanent type of houses (mud-brick walls and grass thatched roofs). Subsistence agriculture is commonly practiced, with maize, beans and pigeon peas, the main crops; few people keep livestock, but nearly 74 per cent of households have goats (average 4 animals).

Although many people know how to read and write the educational level is quite low as large proportion of (male) young population drop out of school before, or at class 8 in order to join wood carving industry.

Household economy is focused on woodcarving as the major income generating activity, and 90% of all male members interviewed among the sample households were engaged in the woodcarving industry, and those members working elsewhere (less than 1 percent) had of one time or another been engaged in, or knew how to carve. Income earned from woodcarving vary widely and depend on one's skills. Income earned from wood carving activities is mostly used to meet domestic expenditure needs (food - cereals take up over 50%); pay school fees; medical expenses, and to finance new developments like variety of businesses in Wamunyu and other centres. Other sources of income include ownership-operation of retail businesses within the trading centres. Indicators of success or wealth are based on different perceptions across generations. Wealth or "state of being comfortable" is related to one's skill in carving, and on the basis of this criterion, following categories of household wealth were identified.

Case I: Subject is 28 years old, has 3 children lives on a 2 acre plot, is an apprentice carver and earns about Kshs.1,500 (nett) per month from his carvings. He has no livestock; his house is temporary. Regarded as poor.

Case II: Age 40, married with 6 children, 2 boys and 4 girls (age range 3-18), eldest child Std. 8 drop out; has about 5 acres; has 1 milk cow; dwelling semi-permanent; is a designer at Africa Heritage (Nairobi), but carves a lot during free time and estimated net income is about Kshs. 5000/= per month medium.

Case III: Age 71, polygamous, first wife, 3 girls and 3 boys (age range 7-36) some 50% working, 2 married children; has more than 5 acres; owns livestock; permanent house, 3 rooms, sons carving in Nanyuki, another at Kenyatta University, rest schooling, very experienced and sought after carver, earns over kshs. 10,000/- per month. Farm produce supplements income from carving; considered successful.

Majority of the carvers are in the medium age group (18-39 yrs) and can be categorized as "comfortable". Larger proportion of woodcarvers consistently earn more than the wage employees from other sectors in the government.

Perception of resource scarcity varies among age groups, with the older generation (elders) more aware of the crisis the industry faces in the future due to the rapidly declining natural resources. The younger generation believes that the government of the day should help wood carvers by whatever means to sustain their livelihood.

6.3 Identity, Preferences, Characteristics, Source(s) and Status of Woodcarving species

Table 4 illustrates the 10 main raw materials for woodcarving in their ranked order of preference. The criteria for preference are based on multiple attributes: durability (the carvers emphasize that the wood should not change physically under any weather condition, with particular reference to the European weather); resistance to insects (wood borers):

Table 4: List of names of 10 wood carving species in matrix ranked order of preferences detailing attributes, sources and (perceived) status.

Botanical name	Kamba/Trade name	Characteristics	Sources
Dalbergia melanoxylon	Mpingo/Ebony	Very durable, Resistant to insects, Excellent market prices, Heavy, attractive perfect finish.	Kitui, Makueni, Kwale
Olea africana	Mutamaiyo/olive wood, Teak (Rose Wood)*	Durable, resistants to insects, Good workability, Beautiful grains, good market prices.	Kyulu Hills, Kwale, Rift Valley forests
Combretum schumanii	Muwa-osi/Teak	Durable, resistant to insects, attractive, very good prices.	Kyulu Hills, Kitui, Kwale, (Makueni) Kilifi
Terminalia spinosa	Mutanga/Kamba Mahogany	Durable, Heavy, resistant, attractive and fragrant, oily, good prices medicinal.	Kitui, Makweni, Coast (Kilifi)
Brachylaena huillensis	Muhugu/Muhuhu/Mahogany	Durable, Beautiful finish, resistant, good market prices, easy to spilt.	Ngong, Karura, Nyeri (Kabaru) forests
Terminalia brownii/ kilimandischariana	Muuku	Beautiful, Durable, Good for large carvings	Machakos, Kitui, Makweni
Xanthophylum chalybeum	Mukenea	Durable, Beautiful, easy to work on, good prices	Kitui, Machakos, Makweni
Cordia sinensis	Muthea/Mahogany	Durable, Beautifau grains	Yatta, Kitui
Terminalia prunoides	Mutoo	Durable	
Melia volkensii	Mukau	Durable, resistant to insects, attractive	Yatta Kitui

* The different trade names for one species is one example of common confusion with wood carvers who often classify all wood with certain similar characteristics under one trade name.

workability (the wood should be easy to work, yet hard enough to resist splitting and cracking); aesthetic values, derived from grain texture, colour and patterns. The sum of these factors dictate the price of the product. The all-time popular species is *Mpingo Dalbergia melanoxylon* marketed under the trade name Ebony. It combines all the above attributes, and therefore its products command the highest premium prices as compared to any other standard item from the rest of the species.

Because of very high value attached to its products, *Mpingo* is the most over exploited among all the preferred species for woodcarving, and remain most threatened wherever a few stands are still available. Information from the elder members of the wood carving co-operatives confirm that *Mpingo* was not used much for making the material culture items for the Akamba in the past. This is partly because the nature of the wood (hardness) deterred many an enthusiastic carver's interest, and thus many of the early items were made mainly from the relatively more easy wood to work, like *Terminalia brownii (Muuku)* and others. Use of *Mpingo* coincides with the return of Mzee Munge, the pioneer carver, from the then Tanganyika and the resultant introduction of commercialisation of woodcarvings in the 1930s. The elders in Wamunyu confirm also that *Mpingo* did not occur in pure stands in the surrounding and when the focus shifted to its use, it become depleted within a very short time, as compared to Muhugu *Brachylaena huillensis* which occur in relative pure stands. The time line series on Appendix 4 summarises the historical use/profile of *Mpingo* as the elders in Wamunyu and Mombasa remember it.

Further, a visit to a few market centres which are also the production centres for *Mpingo* in Kitui district confirmed the fear they even the new source areas might not sustain the industry for long time at the current rate of use. Information provided by the pioneer group of carvers in Mbitine Centre (Kitui district) indicates that from just about a few hundred of people who migrated to the new source area in the mid 1970s, there are currently more than 2000 scattered in more than 10 centres in the district. Even banditry which is a common feature in the district has not deterred the carvers as a large number has reportedly gone as far as Mwingi and Endau, both currently the frontier areas of *Mpingo* in Ukambani.

At the Coast *Mpingo* is only remaining on a few individual farmers plots and in the government reserves. Most of the wood used was reportedly received from neighbouring country (Tanzania), local source areas were observed to have mostly juvenile stands.

Although *Brachylaena huillensis* does not appear on top of the list, the majority of carvings in all the co-operative societies except in Makindu, were made from the species and marketed as Mahogany (*Kaya spp*). The other popular species *Olea africana* and *Combretum schumani* both marketed as Teak and Ebony, respectively are also in use, especially the former, which is the main species in use at Makindu co-operative society. The rest are historically linked to the origin of woodcarving in Ukambani and occasionally used, at best as substitutes of the above major species. As a result of this scarcity, *Brachyleana huillensis* is currently under intensive exploitation such that in some areas it has become equally depleted, especially in the coastal forests (Arabuko Sokoke/Gede) where the government has effected bans against further exploitation . The major supply to all the co-operatives is currently obtained from the two sources in Central Kenya forests, Ngong and Karura, both near Nairobi. This shortage is felt most at the coast where the cost of carving wood has become uneconomical. Moreover, our observation confirmed the carvers' complaints and concern that large quantities of the supply they get nowadays are increasingly having immature logs among them, indicating that the mature trees have been depleted or the supplies are obtained illegally, or both. To the carvers the poor quality products from such supplies can only imply reduced earnings. This general scarcity of preferred woodcarving species spells crisis in the industry. In response, the word carvers have been experimenting with some new introduced species, especially at the Coast, where the distance from the current source of the carving species, *Muhugu*, not only makes it expensive to transport, but also unreliable for people who often have orders and a deadline time for delivery.

Table 5 shows the main alternative species in current use at the coast. *Azardirachta indica* (Neem) has become the best substitute for Muhugu *Brachylaena huillensis*, an is already being sold under the trade name of Mahogany; it combines nearly all the characteristics of Muhugu, besides giving the best finish. Its huge stands are abundantly distributed along the

Table 5: List of names of alternative woodcarving species showing characteristics, sources and perceived status

Botanical name	Vernacular Name(s)	Characteristics	Sources	Perceived Statu/Remarks
Azadirachta indica*	Mkilifi, Mwarubaini (S)	Durable, Resitant to insects, easy to work, Beautiful finish, heavy, grows fast	Kilifi, Mombasa, Kwale	Abundant supply; appropriate for large carvings
Mangifera indica*	Mwembe (S)	Easy to work, Durable when treated, Grows very fast	Common as above	Abundant supply, appropriate for large crvings
Afzelia quanzensis	MbabaKofi (G)	Resistant to insects, Hard, Heavy, Good finish	Common as above	Widespred along the Coast
Brachystegia spiciformis	Mrithi (S.G)	Durable, very hard	Common as above	Widespred along the Coast
Manilkara sanzibarica	Mngambo (G)	Durable, very hard	Common as above	Widespred along the Coast

* The two species currently in intensive use as alternatives are introduced but now naturalised in Kenya.

entire coastline; it grows rapidly and requires shorter (10-20 years) rotation to produce harvestable wood, are some of the factors which make it a viable alternative. It is also used extensively by local people as a medicine against a variety of ailments, hence the local name "Mwarubaini" (literally, Giriama for against 40 different diseases).

Another popular alternative species which has been in use for a number of years is mwembe *Mangifera indica.* Like the Mwarubaini it is also abundantly distributed along the coastline. Both species are preferred for carving the large (life-size) animal figures, as well as the famous Maasai warriors. The drawback of *Mwembe*, however, is its susceptibility to wood borers, a problem long recognised by the carvers who go round it by "treating' the carved products with insecticides. This approach has stirred debates about the insecticides used and their environmental friendliness status in the importing countries.

The other species indicated in the list are currently under trial, but have not been fully adopted like the above mentioned two. However, in Malindi and Diani (Ukunda) a good number of carvers were observed using *Mbambakofi Afzelia quazensis, Brachystegia spiciformis* and *Mwamba ngoma Erythrina abyssinica.* Whereas the first species is widely recognised for its hardness and is associated with the famous Lamu and Zanzibar carved doors as well as other Swahili carved furniture, *B. spiciformis* is recognised by the carvers as one of the hardest woods. *E. abyssinica* is an arid and semi arid species as well and the Kamba elder carvers are familiar with it as it was among the species used for manufacturing some of the early material culture items of the Akamba.

Since durability and resistance to wood borers are important criteria among the carvers for selecting wood, it appears many coastal species might prove useful substitutes in the face of the current acute shortages of traditional carving species.

It is important to note that the relatively large number of species mentioned for use as alternatives at the Coast are vulnerable, indeed under threat more than any other species from the different ecosystems in Kenya. Apart from *Azadirachta indica* and *Mangifera indica* which are naturalised exotics, and both have almost countrywide distribution (all other species with high potentials or under experimentation) have limited distribution restricted to the coastal strip. Thus, unlike e.g. *Muhugu (B. huillensis)* which has suffered depletion in some areas but because of its wide distribution is found in other zones, intensive impact on the Coastal species would lead to depletion without any alternative source areas elsewhere in Kenya.

Besides the restricted distribution the Coastal species as potential alternatives for wood carving face a number of threats which became evident during the surveys; among them the following were noted to being of significant impact in the immediate and long-term.

Tourism industry: as a major foreign exchange earner for Kenya tourism is focused to the Coast where the hotel industry is experiencing unprecedented growth and expansion. From Malindi, Watamu Kilifi, Kikambala, Mtwapa, Mombasa area, and South Coast (Tiwi, Diani beaches and beyond) many buildings from luxurious villas in Malindi to tourist villages and resorts complexes along the Coast, are using huge volumes of the Coastal hardwoods. These large amounts of hardwood are required both for initial construction and yearly maintenance of the buildings.

Secondly, the same tourism industry is attracting large populations from other parts of Kenya with resultant demand on more houses; the traditional Swahili type of houses commonly built for the low income groups along the Coast in the fringes of urban areas require more varieties of poles than other ordinary types. Furthermore, these houses require regular repairs during their lifetimes (8-12 years) which translates into more poles from the hardwoods.

More alarming is the joblessness rate observed in South Coast, Kwale district, coupled with the fastest growth/expansion of tourism industry. Information from the local people and our observation confirmed that due to closure of the sugar industry many people who become jobless (most of the people where from other parts of Kenya) have found alternative income generating ways by harvesting wood to supply the insatiable local fuel market. Further, the Calcium Products Factory near Ukunda, the two tiles factories and several fuelwood based industries bakeries in Mombasa are consumers of large volumes of wood. Although it was beyond the scope of the study, it was observed that with all these demands on the wood resources, the supply cannot be sustainable. As a result, species-focused utilization that is characteristic of the wood carving industry would greatly accelerate depletion, considering also the number of people who are turning to wood carving as an occupation.

6.4 Quantification of Volumes of Woodcarvings traded locally and from Kenya

6.4.1 Export: Quantities Value and Destinations

In this section, tabulations of Customs figures are presented for years 1985 - 1992. Tabulation is also given for woodcarving export sales from the KCCU for years 1990 - 1994 in terms of quantities (number of pieces and value in Kenya Shillings). The species used have also been indicated and it is clearly evident from the KCCU table that *Muhugu* is the most popular species. Tabulations have also been made on estimated quantities of woodcarvings traded by individual City curio `kiosk" owners annually.

Table 6: **Annual Export of WoodCarvings by Quantities and Value: 1989 - 1992.**

Year	Quantity (Kg.)	Value (Kshs.)	Value (US$)
1985	595	67,085	4,193
1986	4,273	454,863	28,430
1987	3,540	323,122	20,195
1988	4,687	467,275	25,960
1989	27,471	2,046,284	88,970
1990	42,297	7,439,107	323,440
1991	122,831	13,951,961	498 284
1992	214,280	18,895,414	269,935
TOTAL	419,974	43,645,141	1,259,407

(Source: Ministry of Finance; Customs statistics/reports)

Table 7 **Quantitiies and Value of WoodCarvings Exported by the KCCU: 1990 - 1994.**

Year	Quantities (pieces)	Value (Kshs)
1990	32,100	9,799,200
1991	37,730	6,632,988
1992	59,005	11,375,340
1993	32,450	4,426,070
1994	72,875	8,037,806
Total (Muhugu)	187,328	40,271,404
Total (Olive)	46,832	8,054,280
TOTAL	234,160	40,271,404

(Source: KCCU records.)

It is worth noting that even though the woodcarving handicraft cooperative societies produce wood carvings from other species of wood other than the Muhugu and Olive wood, KCCU receives orders for only these two species. Hence any other woodcarvings made from the other species of wood such as the *Mpingo* are sold directly to the market (i.e. shops and other retailers and wholesalers and individual reporters without necessarily going through the KCCU.

As can be seen from the above tables, export trade in woodcarvings has been increasing over the years both in terms of quantity and value. A steep rise is especially evident between year 1988 and 1989; a scenario which could be explained by two possible factors; i.e. either (i) export market and demand for woodcarvings had greatly expanded, OR (ii) classification of wood products and record-keeping of their exports had not been streamlined before 1989.

The major dealers in woodcarvings such as KCCU, Undugu Society, and African Heritage reported their average annual sales to be 25, 6 and 2 tonnes respectively. Despite this positive outlook, some dealers, e.g. African Heritage admitted that their annual woodcarving sales had gone down over the years by about 50%. They attributed this decrease in sales to stiff competition form other dealers, especially the many newcomers who have joined the trade. As for the KCCU, it should be noted that the Union exports woodcarvings made from only two species, i.e. Muhugu (80%) and African Olive-wood (20%). This is usually in response to the buyers' demands. The other reason given for the apparent popularity of the two species was that woodcarvings made from the other species are vulnerable to wood pests. Yet it must be added that most of the other individual business respondents did not give information on the issue of quantities traded in and their values, either due to poor or lack of records or fear of compromising confidentiality.

Table 8 below gives a breakdown of woodcarving exports in terms of destinations as well as quantities to the stated destinations and the value of those quantities.

Table 8:**Export of Wood Carvings to 10 Major Destinations**
Quantity and Value: 1985 to 1992

	Destination	Quantity (Kg)	%	Value(Kshs)	%
1.	U.S.A.	188 306	47	22 508 866	52
2.	Japan	30 757	10	5 729 773	14
3.	Botswana	26 906	7	600	1
4.	Spain	26 062	7	3 039 337	7
5.	U.K.	25 717	6	1 953 204	5
6.	Germany	25 681	6	2 223 796	5
7.	France	12 275	3	1 123 074	3
8.	New Zealand	10 164	3	751 745	2
9.	Canada	9 591	2	967 112	2
	Others	36 351	15	3 925 618	2
	TOTAL	**400 810**	**34**	**42 999 561**	**100**

Table 9: Wood carving export destinations and values in Kenya shillings, 1992-1994 Source: Ministry of Commerce + Industry, External Trade Dep

COUNTRY	1992	1993	1994	TOTALS
AUSTRIA	202,439.00	227,038.00	4,964,363.00	5,393,840.00
AUSTRALIA	92,346.00	1,152,914.00	932,294.00	2,177,554.00
BELGIUM	88,375.00	81,976.00	252,210.00	422,561,00
CANADA	2,858,397.50	3,031,898.00	3,281,089.00	9,171,384.50
DENMARK		2,859.644.00	5,915,289.00	8,774,933.00
FINLAND	306,430.00	511,182.00	169,080.00	986,692.00
FRANCE	4,506,605.50	9,328,406.00	4,154,758.00	17,989769.50
GERMANY	3,804,414.75	6,833,985.00	8,741,343.00	19,379,742.75
GREECE	36,520.00	598,035.00	613,590.00	1,248,145.00
HUNGARY		164,741.00	1,617,451.00	1,782,192.00
IRELAND	79,488.00	73,808.00	3,630.00	156,019,143.00
ITALY	1,644,303.00	3,904,436.00	3,470,404.00	9,019,143.00
JAPAN	3,084,088.00	4,036,055.00	6,619,494.00	13,739,637.00
LUXEM-BOURG			156,600.00	156,600.00
NETHER-LANDS	99,367,00	1,832,430.00	2,216,778	2,316,145.00
NEWZEALAND		272,729.00	703,264.00	975,993.00
NORWAY	4,800.00	2,876,720.00	321,176.00	3,202,696.00
POLAND	238.00			238.00
PORTUGAL	212,170.40	883,365.00	1,466,453.00	2,561,988.40
REUNION	181,071.00	261,766.00	25,185.00	468,022.00
ROMANIA			9,900.00	9,900.00
SCOTLAND	83,126.00			83,126.00
SLOVA REP.			985,000.00	98,500.00
SLOVENIA			18,247.00	18,247.00
SOUTH AFRICA			99,300.00	99,300.00
S. KOREA		141,500.00		141,500.00
SPAIN	5,692,727.70	5,947,920.00	3,495,063.00	15,135,710.70
SWEDEN	479,758.00	2,014,253.00	852,167.00	3,346,178.00
SWITZERLAND	614,922.60	2,073,456.00	493.570.00	3,181,948.60
U.K.	5,217,681.70	6,056,558.40	11,826,280.00	23,100,520.10
USA	33,177,733.00	54,286,577.75	36,847,969.00	124,312,279.75
TOTAL	62,467,002.15	109,451,674.15	100,251,674.00	272,170,069.00

* Note that these figures are different from those provided by Customs and Excise. These disparate figures occur because most exporters avoid filling customs forms (E25 and E29) which would automatically require that they pay customs duty, irrespective of their profits. As a result, most people (exporters) of all categories prefer to export through the Commerce Ministry (Kenya Export Trade Authority).

From table the above, it is clear that the major importer of wood carvings from Kenya is the United States of America, receiving almost 50% of all wood carving exports from Kenya.

This corroborates finds from interviews with dealers/traders/societies as well as the crafts union, most of whom reported that they mainly exported to the U.S. For example, it was reported that almost all wood carvings (over 90%) exported through the KCCU are usually destined for North America - i.e. the U.S. and Canada. Perhaps the role of the Monnonite Central Committee in the promotion of export trade in handicrafts through **`SELFHELP Crafts of the World'** project deserves to be mentioned here. This project has played a major role in connecting Kenyan (and other Third World) artisans with U.S. and Canada markets. It is no wonder then that U.S.A. remains the major importer of Kenya's wood carvings throughout the years of study.

In Africa and Europe, the major destinations for Kenyan wood carvings are Botswana and Spain respectively while the bulk of such exports that are destined for the East go to Japan. Other popular destinations mentioned were the United Kingdom, France, Germany and New Zealand.

Table 9 illustrates the rate of growth of the wood carving industry within the past 5 years. With less than 10 major destinations for exports of average value of Kshs. 1 million in the 1980's, the industry experienced unprecedented surge of growth in the number of new destinations which increased to 31, while the cumulative value of the exports for 1992, 1993 and 1994 reached Kshs.272 million. This growth and the number of new destinations may be explained to have been caused by the opening of new markets/including a few in the former Eastern block countries in the early 1990's.

The figures provided by Kenya External Trade Authority (now Ministry of Commerce & Industry) do not include those carvings sent by parcel post, and which also make a significant proportion of exports. Therefore, the actual export figures are quite high.

Exports since mid 1980's have changed as shown on Appendix V and VIIa. Whereas the absolute value of carving exports has increased significantly since 1970, the percentage of the total woodcarvings in the handicrafts market has shown significant decline. The reason is the great success of sisal baskets (ciondos) on the world market, which despite competition with synthetics replicas from South East Asia (Korea, Taiwan) have completely overshadowed woodcarvings as an export item. The basket weaving industry is also an Akamba material culture and cottage industry.

6.4.2 Income

From the foregoing, it goes without saying that the woodcarving industry in Kenya has become not only a major source of income for families and individuals but also a foreign exchange earner for the country which cannot be ignored. This survey confirms that there are well over 20,000 people working as woodcarvers in the country, either independently or in cooperatives. The importance of the industry to the country cannot therefore be over-emphasized. From the Customs records it was evident that export trade in woodcarvings earns the country an average of Kshs. 15 million per annum*.

As for individual societies, companies or the Union; KCCU reported that its members earned Kshs. 27 million from handicraft export sales during the 1993/94 fiscal year of which about 35% was from woodcarving sales. In addition, it was reported that the industry supports an average of seven or more people per family. Undugu Society reported that it earns between Kshs.2.5 - 3 million annually from wood carving sales both locally and through export. On the other hand, African Heritage Ltd. reported that it earns about Kshs.18 million from all crafts sales of which 25% (i.e. about Kshs. 4 - 5 million) comes from the sale/export of woodcarvings.

Most owners/managers of big established (mostly Asian) curio shops in Nairobi which number over 50, were not willing to divulge information on quantities of wood carvings they traded in and earnings accured though they conceded that the handicraft business was the main source of income for themselves and their families. The assumption to be made here is that most of their export activities have been captured in the customs data. The local

* According to Customs + Excise figures, which are different from Ministry of Commerce's.

sales of wood carvings from these established shops could only be estimated after looking at the sales from the small vending shops. A visit to Nairobi city centre curio 'kiosks' or vending shops especially those located between Tubman Road and the Jamia Mosque (Kigali Road) including those in the vicinity revealed that quite a significant amount of woodcarvings are sold through these kiosks.

It was established that there are over 400 such curio 'kiosks' located in this particular area of the city of which one-half, i.e. 200 deal exclusively in woodcarvings while the rest are diversified (dealing in soapstone, baskets, etc.). After interviewing almost half of these woodcarving kiosk owners, we divided them into two categories as follows:

i) those who sold less than 100 small pieces of wood carvings per month and which we called small scale dealers and

ii) those who sold 100 - 1000 small pieces of woodcarvings per month and who we called medium scale dealers who, invariably included a few wholesalers and exporters.

Below is the summary of the findings:

Table 11. Summary of quantities (pieces) of woodcarvings sold through city vending shops: Monthly and Annually

			Av. Qty. per month	Av. qty. per yr
I.	Small Scale Shops			
	1.	Small size pieces	1,575	18,900
	2.	Medium size pieces	1,350	16,200
	3.	Large size pieces	225	2,700
		Sub-Total	**3,150**	**37,800**
II.	Medium Scale Shops			
	1.	Small size pieces	93,000	1,116,000
	2.	Medium size pieces	62,000	744,000
	3.	Large size pieces	18,600	223,200
	Sub-Total		**173,600**	**2,083,200**
	GRAND TOTAL		**176,600**	**2,121,000**

Note that these estimates were worked out after obtaining average monthly sales for the various sizes of woodcarvings by the two categories of dealers. Also note that 45 kiosks constituted small scale shops, each selling an average of 35, 30 and 5 small, medium and large pieces per month respectively. The rest, i.e. 155 kiosks constituted the medium scale category each of which sold - on a monthly basis - an average of 600, 400 and 120 small, medium and large pieces respectively.

The conclusion is that the small curio vending shops or 'kiosks' within the city centre sell at least 2 million pieces of woodcarvings per year, either locally or abroad. If we assume that the large established i.e. large scale curio shops (which number over 50) all together sell double what these city vendors sell then total sales of wood carvings through city shops only (big or small) would amount to at least six million pieces annually.

The sizes of woodcarvings that were reported to sell most - both among tourists and for export were small (3 x 6 inch) and medium (4 x 8 inch). It was further reported that large woodcarvings have a higher tendency to crack when they get to countries of destination due to the different weather/climatic conditions.

Cost factors also determine the popularity of small and medium sizes as opposed to the larger ones. It is less costly to buy and transport (by ship or air) small and medium woodcarvings than it is for the larger ones.

6.5 **Market Valuation** (through pricing along the marketing chain from 1st harvest to final sale)

Establishing market value of wood sculptures through the pricing system along the market chains is a complex one. This is because of the considerable variety of carved products, the different categories of players in the industry and the variable production factors involved. Basically, the industry can be examined in detail between the producers (carvers) and the web of consumers (markets). The role of the harvesters at the initial linkage between the resource and the producers is eclipsed by the overwhelming participation of resource transporters and the producers.

There are two distinct pricing systems: one, a more straight forward method based on economic principles of costing, and is adopted by the co-operative societies; and two, a complex and largely discretionary system outside the co-operatives employed by the independent carvers, *Jua Kali* groups and the different categories of curio dealers.

Survey across the above different categories of players followed by inventorying of different curio establishments revealed that the industry produces the following major categories of wood products:

- Animal and Human figures, the former dominated by the famous Big Five (Elephant, Rhino, Giraffe, Lion, Leopard) and "Maasai Warriors."
- Masks derived mostly from Makonde and Central African traditions.
- Ceremonial/Cultural items eg. walking sticks, etc.
- Utilitarian items like sugar/fruit/salad bowls, ladles, table napkin rings, letter openers, etc.
- Decorative items like earrings, neck hangings, bracelets, etc.

The majority of wood carvings are produced according to measured (standard) sizes, and the carvers often work exclusively within specific boundaries of each of the above categories, although majority are capable of producing a wide variety of carvings.

Although sizes are standardized across product categories, prices vary widely even within similar size classes. For example, figures of giraffes belonging to the same size classes in Table 10 have varying prices ranges each set by an individual carver- owner. The varying prices within product categories and size classes reflect the different criteria the producers employ in the mark-up of their carvings. Below are some of the factors the carvers mentioned to influence the varying prices encountered within similar size classes.

- Type of wood used; the higher the quality of the wood, the greater the prices fetched by the products.

- Workmanship: the greater the skill employed in working the wood and the design, the more attraction and therefore more expensive a product is.

Further, the carvers arrived at their final price tags by considering:

- the cost of the type of wood used usually supplied through the co-operative,
- the cost of ferrying the wood from the co-operative timber-yard to the carving shed;
- cost of sawing the wood into desired pieces
- optional cost of splitting the wood into desired planks,
- cost of carver's labour based on total time spent on the carving, plus sharpening tools (done by a specialist tool maker) in between carving, and expenses on food/ drinks.

The carved (rough) product from the above stages is then sent to the finishing line where the first stage of sand-papering costs between Kshs.5 and Kshs. 20; this stage may be free when done by an apprentice of the carver who often learn skills at the cost of such labour. Then depending on the type and category of carving it passes through one or several of the following processes: polishing, colouring (painting or dyeing) and adornment with beads. When the carving is ready it is taken to one of the following society's outlets: showroom (retail), wholesale or export section, where upon sale, the society subtracts a 20 percent commission from the total value. In this case the society does the marketing for the members at the small commission charged per product. It is easy to follow this pricing system, as all the products have price tags, members' names and society registration numbers.

Table 12: **Market Valuation: Example of inventory of range of prices of some standard sizes and price ranges.**

Product Category/Items	Size class (inches)	Raw material	co-operative price ranges (Kshs)	External price ranges (Kshs)
I. Animal/Human Figures e.g Giraffe figure " " "	4 x 8 " 12 " 24 " 48 "	Muhugu Mpingo Muhugu Neem Neem	300-800 500-1800 650-2000 1200-6000	200-1500 4000-30000 2000-15000 1200-25000
"	Giant/life size	Neem	5000-40000	4000-74000
II. Masks " " "	Small medium large	Mpingo Muhugu Mugugu	500-4500 700-6000 1000-9000	400-9000 500-12000
III. Utilitarian Items eg. Fruit/Salad bowl	6" diameter	Olive	300-1200	500-5000
IV. Decorative Items eg. assorted earrings etc	"miniature (1 - 2")	Olea, Mpingo	Kshs.50/= per bundle to 200/=/bundle	100/= per bundle to 1000/= or @ 20/=

Whereas the above system is relatively easy to follow, if is confounding to attempt to follow the system "outside" the co-operatives, which comprise the *Jua Kali* groups and a host of independent.carvers as well as dealers in curios. Valuation of the market outside the co-operatives is made difficult by the discretionary nature of the majority of the different categories of curio vendors, dealers as well as the carvers. In most cases, information could only be obtained when we posed as buyers. Linking costs at any one of the several production stages was impossible due to lack of information (reluctance to provide it); also, the cost of raw materials and services could not be verified, except after consultation and interviews with local resource owners (farmers, etc). Thus, the outside valuation because an elusive exercise. Nevertheless, an interesting feature of the group is their flexibility which enables them to sell their wares at competitive rates as well as do barter trade as observation in a number of places along the coastal beaches, and sidewalk kiosks in both Nairobi and Nanyuki showed that curios were exchanged for both new and second hand items eg. clothes, sportswear, cameras, wrist watches, and pocket radios, walkman, etc. while others were being paid for in foreign currency. It is worthy of note that about 80% of all the curio kiosks along Moi Avenue in Mombasa, near the Great Tusks Area sell items obtained through barter trade in curios.

The curio shop/gift centres in Mombasa, Nairobi, Malindi, Diani had one common feature where prices were displayed or where information on prices was voluntarily given - the widest range of prices within product categories and size classes. For instance, a gazelle 8" high made from *Muhugu* had prices ranges between Kshs. 2500 and 8500 while a similar size made from *Mpingo* was between Kshs.4000 and 25000/=. Majority of these items were obtained from the Akamba (Mombasa) Co-op. wholesale shop or direct from the carvers at extremely low prices, and it was not possible to gauge their criteria for such high mark-ups. The downtown shops in Nairobi had even wider variations of price ranges for similar items.

As a result of the above constraints, it became logical to focus our attention to the more open system within the co-operatives, and a few inventories representing different size classes and product categories, income were taken as shown in Appendix 6.

7.0 Discussions

The woodcarving industry in Kenya is a dynamic and viable enterprise. The important characteristics of the industry such as labour intensiveness and requirement of minimum operational capital makes the industry accessible to a large number of people, especially jobless school leavers, and provides steady income to both poor rural and urban households.

A forest based industry with a largely external and unpredictable markets like woodcarving industry in Kenya faces constraints which plague similar industries elsewhere in the developing world. The woodcarving industry in Kenya is still largely classified as a small-scale enterprise; thus, it can continue to be a competitive and productive enterprise with immense impact as source of income to the rural and urban poor. However, despite the advantages to the local economies they share certain constraints with similar industries elsewhere that threaten the livelihoods of the very populations they play crucial roles in supporting. Some of these constraints can be discussed under the following categories:-

* Declining natural resources for raw materials.
* Total reliance on unpredictable foreign based markets.
* Ineffective institutional support.
* Socio-economic variables on the control of the industry.

7.1 Declining natural resources

As mentioned in earlier chapters the natural forests in Kenya are important sources of multiple products to both households and forest based industries. The woodcarving industry relies on indigenous hardwoods from the natural forests. However, as these forests are under pressure of having to support a larger, rapidly growing populations besides fulfilling additional demands for extra incomes and specific forest products, the issue of sustaining the resource base looms large. The acute shortage of preferred raw materials for wood carving spells a crisis in the industry that supports close to 300,000 people, directly and indirectly.

Several indicators of the shortage of preferred wood species are already evident. Since the most preferred species are already depleted from their original habitats, supplies have to be transported from new source areas at exorbitant costs, which in turn is transferred to the wood carvers who must buy the timber at a very high prices. The high cost of raw materials implies that the woodcarvers' profit margins are significantly reduced.

At times the shortages are so acute that the carvers have to find alternatives for their standing orders. When this happens, which is becoming more often, the carvers are resorting to the use of immature species or substitutes, the latter of which must be "treated" by more colour to enhance the characteristics of its original equivalent. To discerning and critical consumers, this is causing loss of reputation in the industry with consequent loss of valuable markets altogether. The use of the immature wood, especially of *Brachylaena huillensis* for carvings which are then exported have met complaints from consumers abroad whose orders have suffered cracking etc.

A problem closely related to this is the supply of wood carvings not dried down to a moisture content suitable fore Western houses, the ultimate destination of majority of the products. The equilibrium moisture content (EMC) of wood in Kenya varies from about 12-18% depending on the region; the EMC of centrally heated European houses is about 8%. This implies that wood carvings which are normally air dried to local EMC still suffer physical changes (shrinkage and splitting) due to further drying abroad. The highest incidence of these defects have been reported on wood carvings originating from the coast where the natural humidity is relatively higher all year round. A major need here would be to introduce artificial drying techniques to reduce the incidence of splitting and consumer dissatisfaction an exercise that would certainly require large capital input considering the enormous volumes of wood involved.

Currently, owing to the shortage of *Dalbergia melanoxylon* majority of showrooms are selling only smaller pieces of carvings which the dealers complain do not attract most attention of consumers due to what the latter consider to be unrealistic price tags.

7.2 Unpredictable, foreign based markets

Wood carving industry is virtually tourism focussed and is vulnerable to the whims of the market, whose consumers tastes can change dramatically in response to a number of factors, among which even specialization and production of only one product or use of only one type of raw material might trigger. Already there is concern abroad that woodcarving products from Kenya are monotonous without any innovative design. A view like this being amplified in the market controlled by whims should set the carvers adapting to new designs and diversifications of activities in order to meet the ever changing market demands. The decline of demand for sisal baskets (ciondos) was as a result of taking too long to implement new designs to counter the cheap synthetic substitutes from Taiwan which have since flooded the international market.

7.3 Inefficient institutional support

Among the objectives of the wood carving co-operative societies are to promote the production and the marketing of handicrafts product; to assist manufacturers (carvers) to improve processing techniques and business management skills; to improve the design and quality of woodcraft; to assist carvers acquire funds; licensing of timber and other problems.

However, the woodcarving co-operatives apparently do not enjoy many of these benefits and the carvers and officials cite many areas where they need support such as soft loans for expanding or diversifying their businesses, training on new designs or learning new entrepreneural skills, but do receive enough response from the government. The little institutional support they receive is external and yet it can only cover the needs of very few members, due to the sheer number of wood carvers/dealers in the industry.

7.4 Sociological implications

Woodcarving industry in Kenya is built on unstable social and natural environment. The sociological factors which often play an important role in determining the success of an industry such as the woodcarving have historical records of failure as one social group gains an exploitative edge within the small scale sector that others view almost as their birth right but lack the power to challenge. Ethnicity is a live debate in the wood carving industry with defined roles of each group/and individuals. The art and the initial industry originated from the Kamba, and for a long time carving (wood) and the Akamba were synonymous. While the regional and most of continental (upto Southern Africa) trade was virtually theirs, the Indians were exploiting the lucrative international markets in Europe and North America and by 1970s, the Akamba had been eclipsed into the role of mainly producers with virtually no say or control of the market. The 1980s saw the emergence of new entrepreneurs from different ethnic groups, who not only joined carving more as a past-time than profession, but became middlemen between the major retailers in the big towns and the woodcarvers. To-date the Akamba still donimate the carving role (ethnicity plays a role even among the Akamba as people from Wamunyu are mainly carvers and dominate the industry, while Kitui people, who are traditionally non-carvers are just joining, but even then their role is restricted to the finishing line of the industry) and most of the small curio trade (sidewalk kiosks, city market stalls) and the Asians control the export trade.

Complex socio-economics and history have created this pattern and there may not be significant change of roles in the near future. However, there should be attempts not only to recognize the very vulnerable groups, especially the young women, mostly single mothers, widows and "deserted" women who make up in large percentage of the work force in the industry and play significant role in the finishing line sector, but earn a pittance compared to menfolk in the same sector.

Another issue of concern in the industry is that of income: woodcarving industry can bring in much needed household income, but it offers the majority of farmers (harvesters), carvers and other players at the productions/processing level very low incomes. Although majority people in the woodcarving industry have incomes which are consistently higher than most people in other small scale industrial sectors, their earnings are still below what they should earn. Majority of profits are pocketed by the middle(wo)men, the urban curio dealers and exporters. The unequal distributors of income is such that the village (where majority producers are concentrated) carvers earn far less than the urban distributors/and middle(wo)men; the finishing line "processors" earning far less than the curio stockist who in turn earns just a fraction of what the exporter gets.

A pertinent question in the woodcarving industry is: how can the woodcarver escape from the present low-value added trap? The wood carvings are available in all qualities and price ranges, both within the different co-operative societies and the independent groups of carvers. At the very top of the carved items are works of exquisite craftsmanship and this is represented by a small portion of the entire volume of the carvings; at the bottom, and to which the majority of the carvings belong is what is generally referred to as "junk", "airport stuff", etc, by art critics.

The co-operatives showrooms are full of these low-value, mass produced carvings and reflects the enormous volumes of timber consumed. The answer to this dilemma perhaps is in the subject the project is going to address by help from the Mennonite Centreal Committee (MCC), as a component of the next phase (II) of the study and this touches on changing the product line and/or adding value to the products through design innovations. At present, the exporters with the backyard factories are earning large amounts of money by simply adding value to the `rough', semi-finished products from the carvers, through a combination of imaginative re-processing and transformations.

Contrary to the belief that the carvers are conservative and therefore aversive to change, it has been observed among both the young and elderly carvers that they are positive to changes that not only promise, but also earn them money. As a result, many orders coming with specifications based on pictures or object samples are being filled in record time.

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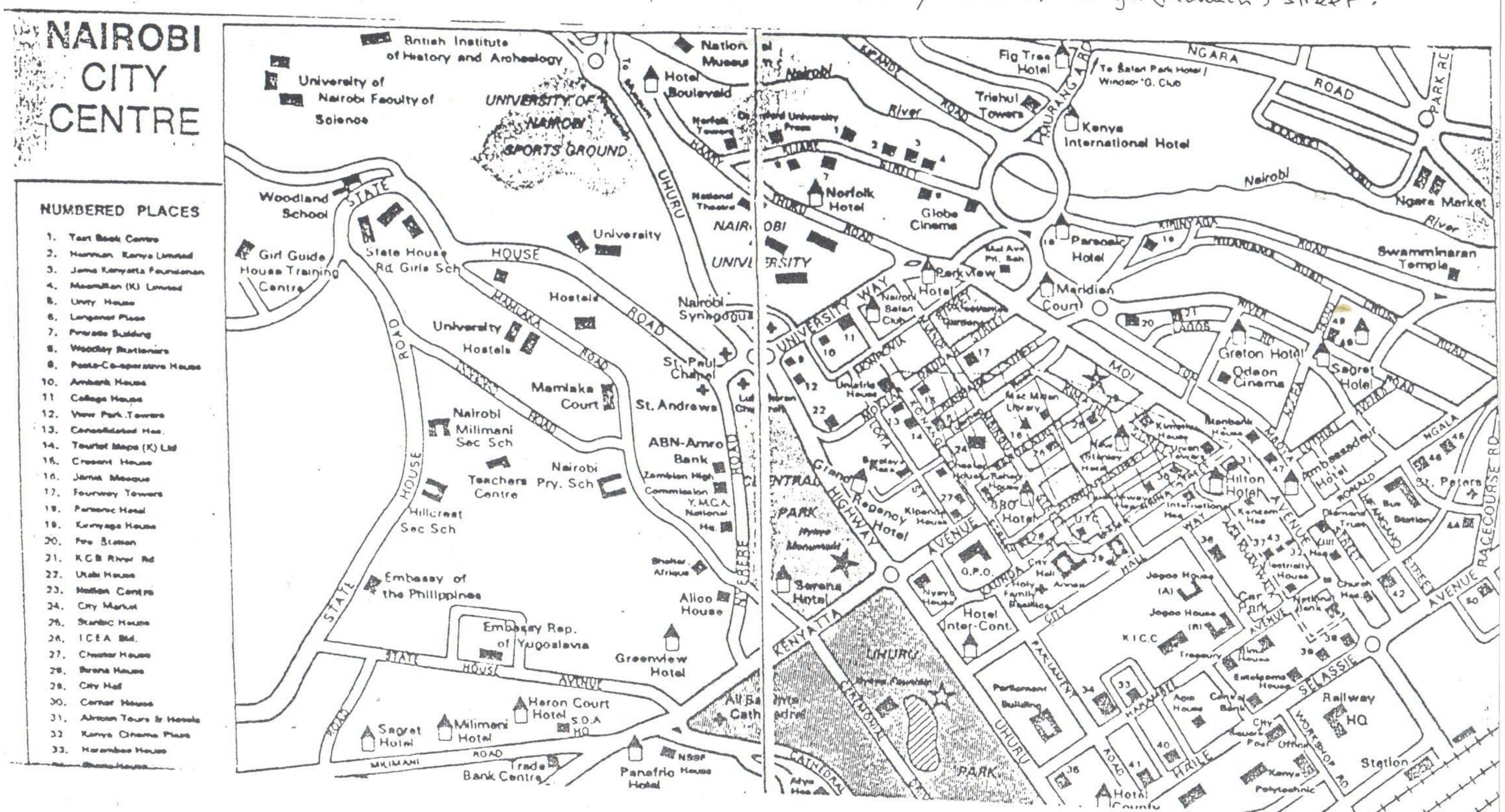
Appendix 1 . "Tourist triangle" within Nairobi city where majority of curio/souvenir shops are concentrated, demarcated by length of Mama Ngina street, round the Hilton Hotel, up Kimathi street (City Market), + Mbingu (Muindi) street.



Appendix II

Cummulative list of Names of Species Under Use for Wood Carving in Kenya (K=Kamba; Kik-Kikuyu; G= Giriama; S-Swahili)

Botanical Name	Vernacular Name
Acacia elatior	Munina/Kinina(K)
Acacia etbaica	Muswiswi (K)
Acacia Mellifera	Muthiiya (K)
Acacia nolotica	Musemei (K)
Adansonia digitata	Mwamba (K)
Afzelia quanzensis	Mbamba kofi (G)
Albizia amara	Moundwa (K)
Albizia anthelmintica	Mwowa (K)
Albizia versicolor	Mutanga (K)
Anacardium occidentale	Mkwaju (G)
Azadirachta indica (exotic)	Mkilifi (S,G)/Mwarubaini (S,G)
Balanites aegyptiaca	Mululue/Kilulue (K)
Boscia augustifolia	Kiui/Muui (K)
Brachylaena huillensis	Muhugu/Muhuhu (K)
Brachystegia spiciformis	Mrihi (G)
Bridelia micrantha	Mwathia (K)
Casuarina equisetifolia	(Exotic)
Combretum schumanii	Mugurure (G)/Mua-osi (K)
Commiphora africana	Ikuu
Commiphora baluensis	Itula
Cordia sinensis	Muthea
Cuppressus lusitanica	
Cynometra webberi	Mfunda (G)
Dalbergia melanoxylon	Mpingo (K)
Erythrina abyssinica	Mwambangoma (G)
Ficus bussei	Mugandi (G)
Grevillea robusta	Mukima (Kik)
Grewia bicolor	Mulawa (K)
Hymennea verrucosa	Mtandarusi (G)
Jacaranda mimosifolia	
Juniperus procera	(Cedar)
Lannea schweinfurthii	Muasi

Appendix IV: Historical profile illustrating use and depletion of Mpingo *Dalbergia melanoxylon* in Ukambabani

YEAR	EVENT
1920-30s	Mpingo available in Wamunyu area few distances apart of approximate sizes upto 50cm basal diameter; carving other indigenous trees; a few Mpingo used for carving.
1931-1940	Focus on Mpingo and *Muhugu;* former's distribution reduced significantly. Migration to Kanyangi in Yatta plateau due to scarcity; scattered trees remaining distances apart.
1941-1950	Mpingo depleted as well as *Muhugu* in the locality; imports of *Muhugu* from Central Province starts; Many Akamba in distance trade (curio hawking) in neighbouring countries.
1951-1960	Crisis as local sources depleted; migration to other source areas; first co-operatives.
1970s	Carvers digging out stumps of both Mpingo and *Muhugu* to sell/use for carving in Wamunyu area. Migration to Kitui District source area for Mpingo (and Kwale district). More co-operatives formed.
1980s	Mass migration to other areas within Kitui District; also more production (carving) centres opened. Prices of wood increases.
1990's	Stumps of Mpingo dug out and sold separately; sticks from Mpingo roots sold (5 sticks = kshs 20); more centres (carving) open as far as Mwingi and Endau in Kitui District as the new frontiers of Mpingo(currently).

Appendix III : Additional species currently under trial at the Coast

Botanical Name	Vernicular Name			
Anacardium occidentale	Mkwaju (S,G)			
Adansonia digitata	Mwambo (S,G)			
Trichillia emetica	Mgalana (G)			
Hymenaea verrucosa	Mtandarusi (S,G)			
Ficus bussei	Mugandi (S)			
Triaonolegsis africana	Mlaga-kuku (S)			
Psydrax chimperiana	Mkarambati (G)			
Oldfieldia somalensis	Mbilandu (G)			
Markhamia zanzibarica	Mtawanda (G)			

G = Giriama; S = Swahili

Appendix IV: Historical profile illustrating use and depletion of Mpingo *Dalbergia melanoxylon* in Ukambabani

YEAR	EVENT
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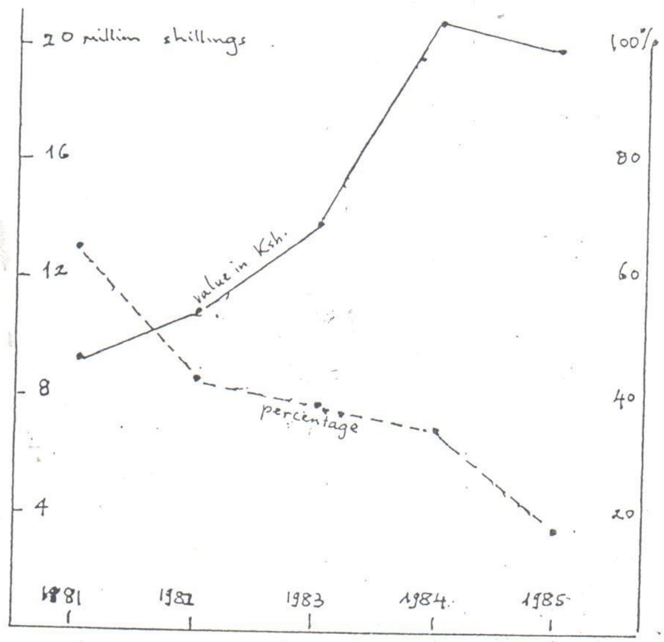
1990's	Stumps of Mpingo dug out and sold separately; sticks from Mpingo roots sold (5 sticks = kshs 20); more centres (carving) open as far as Mwingi and Endau in Kitui District as the new frontiers of Mpingo(currently).

Appendix V : Value of woodcarving exports + percentage of total handicrafts from Kenya (Troughear, 1987).



Appendix .I

EXPORT STATISTICS of HANDICRAFTS 1992

Source: Certificate of origin, Department of External Trade, Ministry of Commerce and Industry.

IMPORTING COUNTRY	WOOD CARVING	SISAL BASKETS	KISII SOAPSTONE	JEWELLERY	FISHING FLIES	OTHERS	TOTALS
USA	33,177,733.00	4,221,102,80	12,942,169.00	11,618,385.20	2,076,510.00	5,745,874.90	69,782,774.90
CANADA	2,858,397.50	20,599,749.00	447,515.25	20,241,486.00	1,614,044.00	1,362,940.00	47,124,132.45
SPAIN	5,692,727.70	35,730,848.00	967,027.00	298,027.00	-	757,651.00	43,447,057.70
U.K.	5,217,681.70	5,472,919.00	2,594,423.00	3,759,705.00	12,823,017.00	6,200,271.00	36,068,016.70
GERMANY	3,804,414.75	8,137,894.00	534,109.00	1,261,127.30	-	1,572,023.00	15,309,568.05
ITALY	1,644,303.00	3,242,034.00	1,544,797.00	2,786,574.00	3,921,088.00	1,204,402.00	14,343,198.00
FRANCE	4,506,605.50	5,319,225.00	1,205,605.00	721,784.25	375,443.30	[illegible],137,176.60	13,265,838.65
JAPAN	3,084,088.00	1,507,669.00	493,935.00	[illegible]363,060.50	5,948.00	311,783.75	5,766,484.25
SWITZERLAND	614,922.60	1,051,195.10	67,747.00	4,561,751.00	45,567.00	2,225,644.85	6,566,827.00
PORTUGAL	212,170.40	4,060,153.00	-	785,767.00	75,395.00	65,844.00	5,199.329.40
AUSTRIA	202,439.00	2,295,505.00	32,019.00	96,630.90	-	128,094.00	2,754,687.90
SWEDEN	479,758.00	360,957.00	-	1,144,506.90	451,566.00	68,494.00	2,505,281.90
HOLLAND	99,367.00	60,000.00	18,341.00	564,950.00	4,554.00	896,835.00	1,644,047.00
NORWAY	4,800.00	2,000.00	-	453,085.70	298,133.50	-n	758,018.50
FINLAND	306,430.00	156,141.00	-	204,002.75	12,168.00	93,345.00	772,086.75
BELGIUM	88,375.00	21,875.00	1850,069.00	-	-	6,365.00	201,684.00
POLLAND	238.00	439,678.00	-	14,928.00	[illegible]	7,069.00	451,913.00
IRELAND	79,488.00	-	-	10,187.00	316,064.00	-	405,739.00
SCOTLAND	83,126.00	--	-	-	23,492.00	2,048.00	25,540.00
AUSTRALIA	92,346.00	7,409.00	[illegible]	65,366.00	-	15,327.00	180,148.00
GREECE	36,520.00	8,375.20	-	-	-	-	120,279.20
RE-UNION	181,071.00	65,653.00	-	-	-	93,925.00	310,649.00
						TOTAL	270,004,943.70

2/

1992 EXPORTED ITEMS EXPRESSED IN THE PERCENTAGE OF THE TOTAL EXPORTS

1. Sisal Baskets - 34.43%
2. Wood Carvings - 23.14%
3. Jewellery - 18.13%
4. Fishing flies - 8.16%
5. Soapstone - 8.04%
6. Others - 8.11%

Appendix VI a : CLASSIFICATION BY PRODUCE 1988 - 1992

ITEM	1988	1989	1990	1991	1992
Wood Carving	27,742,469.00	32,331,582.00	36,906,540.45	64,769,584.25	62,466,912.15
Sisal Baskets	57,645,014.00	38,838,842.00	34,124,294.55	50,649,463.65	92,960,082.10
Kisii Soapstone	5,710,337.20	7,720,602.00	17,709,157.40	16,251,338.60	21,697,756.25
Jewellery	22,805,651.70	15,332,740.00	17,834,249.50	20,461,166.00	48,942,091.20
Fishing flies	20,402,515.45	21,185,788.00	26,999,003.30	21,407,601.40	22,042,989.00
Others	5,179,953.55	3,327,790.00	5,387,936.55	10,445,622.00	21,895,113.00
Totals	139,485,940.90	118,737,344.00	134,971,181.75	191,982,766.10	270,004,943.70

Source: Certificate of Origin, Ministry of Commerce + Industry. Dept. of External Trade.

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Appendix I

EXPORT STATISTICS OF HANDICRAFT 1993

VALUE (KSH)

	WOOD CARVING	SISAL BASKETS	KISII SOAPSTONE	AFRICAN JEWELLERY	FISHING FLIES	OTHERS	TOTAL
AUSTRALIA	1,152,914.00	2,290,406.00	801,002.00	166,444.00	156,058.00	178,550.00	4,745,374.00
AUSTRIA	227,038.00	1,760,549.00		210,075.00		236,820.00	2,434,482.00
BELGIUM	81,976.00	133,278.00	652,274.00			100.00	867,628.00
CANADA	3,031,898.00	401,659.00	2,005,786.00	2,822,853.00	1,001,277.00	1,903,085.00	11,166,558.00
DENMARK	2,859,644.00	2,126,983.00	935,198.00	400,689.00	532,879.00	1,628,371.00	8,483,264.00
FINLAND	511,182.00	265,892.00	78,420.00	756,943.00	122,495.00	150,904.00	1,885,836.00
FRANCE	9,328,406.00	7,987,467.00	825,788.00	1,053,482.00	228,513.00	78,190.00	19,501,846.00
GERMANY	6,833,985.00	11,021.00	4,240,340.00	3,804,903.00	31,390.00	749,835.00	15,671,474.00
GREECE	598,035.00	432,776.00					1,030,811.00
HUNGARY	164,741.00	35,550.00	31,595.00				
IRELAND	73,808.00	18,169.00	9,000.00			265,312.00	497,198.00
ITALY	3,904,436.00	4,315,043.00	7,290,660.00	231,820.00	178,547.00	36,270.00	547,614.00
JAPAN	4,036,055.00	2,802,393.00	205,528.00	559,841.00	2,081,297.00	2,996,507.00	21,147,784.00
NETHERLANDS	1,832,430.00	11,592.00	46,630.00	1,381,555.00	61,200.00	983,938.00	9,470,669.00
NEWZEALAND	272,729.00	82,810.00	620,570.00	596,436.00	574,307.00	1,242,450.00	4,303,845.00
NORWAY	2,876,720.00	30,000.00	2,351.00	144,805.00			1,120,914.00
POLAND		133,980.00	8,078.00	848,230.00	494,427.00		4,251,728.00
PORTUGAL	883,365.00	676,960.00	53,750.00				142,058.00
REUNION	261,766.00	120,800.00					1,614,075.00
S. KOREA	141,500.00	20,500.00		21,723.00		7,545.00	411,834.00
SPAIN	5,947,920.00	18,797,992.00	124,762.00	2,400.00		52,000.00	216,400.00
SWEDEN	2,014,253.00	324,985.00	12,000.00	194,343.00	41,359.00	5,496,823.00	30,603,199.00
SWITZERLAND	2,073,456.00	1,600,672.00	567,624.00	7,366,639.00	1,366,543.00	207,856.00	11,292,276.00
U.K.	6,056,558.40	1,281,523.00	224,091.00	1,053,405.00		227,079.00	5,522,236.00
U.S.A.	54,286,577.75	23,983,279.00	32,356,726.00	4,981,544.00	10,529,789.50	305,223.00	23,378,728.90
				12,471,854.20	1,465,329.00	12,174,537.00	136,738,302.95
							-
							-
TOTAL	109,451,393.15	69,646,279.00	51,092,173.00	39,069,984.20	18,864,910.50	28,921,395.00	317,046,134.85

SOURCE; CERTIFICATE OF ORIGIN

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Appendix VII a:

EXPORT STATISTICS OF HANDICRAFT
CLASSIFICATION BY PRODUCTS 1989 - 1993

VALUE (KSH)

	1989	1990	1991	1992	1993	1993%
WOOD CARVING	27.02% 32,331,582.00	27.6% 38,906,540.45	33.73% 64,769,584.25	23.13% 62,466,912.15	109,451,393.15	35 %
SISAL BASKETS	32.7% 38,838,842.00	24.2% 34,124,294.55	30.54% 58,649,463.85	34.0% 92,960,082.10	69,646,279.00	22
KISII SOAPSTONE	6.3% 7,720,602.00	12.56% 17,709,157.40	8.46% 16,251,338.60	8.03% 21,697,756.25	51,092,173.00	16
JEWELLERY	12.9% 15,332,740.00	12.65% 17,834,249.50	10.65% 20,461,166.00	18.12% 48,942,091.20	39,069,984.20	12
FISHING FLIES	17.84% 21,185,788.00	19.15% 26,999,003.30	11.15% 21,407,601.40	8.16% 22,042,989.00	18,864,910.50	6
OTHERS	3,327,790.00	5,387,936.55	10,443,622.00	21,895,113.00	28,921,395.00	9
TOTAL	118,737,344.00	140,961,181.75	191,982,776.10	270,004,943.70	317,046,134.85	100

SOURCE: CERTIFICATE OF ORIGIN, Department of External Trade, Ministry of Commerce & Industry

Appendix VIII:

EXPORT STATISTICS OF HANDICRAFTS 1994

	WOOD CARVING	SISAL BASKETS	KISII SOAP STONE	AFRICAN JEWELLERY	FISHING FLIES	OTHERS	VALUE (KSH) TOTAL
AUSTRALIA	4,964,363	2,051,987	982,913	619,557	153,799	458,063	9,230,682.00
AUSTRIA	932,294	2,772,599	146,030	106,710	-	103,845	4,061,478.00
BELGIUM	252,210	575,536	25,303	144,469	-	10,331,354	11,328,872.00
CANADA	3,281,089	131,978	2,834,850	2,662,484	7,250,520	22,093,938	38,254,858.70
DENMARK	5,915,289	6,672,724	496,721	3,836,181	819,379	4,396,213	22,136,507.00
FINLAND	169,000	265,781	-	412,632	-	1,275	848,768.00
FRANCE	4,154,758	20,040,297	740,207	400,300	509,333	528,954	26,373,849.00
GERMANY	8,741,343	14,587,040	3,315,616	5,080,895	606,619	2,860,280	35,191,792.90
GREECE	613,590	321,798	34,917	22,760	-	91,722	1,084,787.00
HUNGARY	1,617,451	87,756	116,391	6,432	-	102,140	1,930,170.00
INDIA	-	-	-	291,150	-	-	291,150.00
IRELAND	3,630	-	8,000	241,557	20,494	2,000	275,681.00
ISRAEL	-	46,900		89,957	-		136,857.00
ITALY	3,470,404	18,197,670	4,187,210	1,640,511	2,577,139	1,385,148	31,458,082.00
JAPAN	6,619,494	7,650,289	1,434,671	1,462,716	272,682	1,998,963	19,438,815.00
JORDAN	-	10,000	-	-	-	-	10,000.00
LUXEMBOURG	156,600	84,500	-	-	-	-	241,100.00
NETHERLANDS	2,216,778	2,564,318	1,689,230	1,317,062	627,839	1,421,183	9,836,410.00
NEW ZEALAND	703,264	373,561	1,233,663	-	-	200,434	2,510,922.00
NORWAY	321,176	273,018	4,890	907,033	525,436	237,730	2,269,283.00
PORTUGAL	1,466,453	292,671	305,573	71,052	-	53,510	2,189,259.00
RE-UNION	25,185	25,000	41,457	54,237	-	51,250	197,129.00
ROMANIA	9,900	-	-	9,900	-	5,650	25,450.00
S. KOREA	-	1,440,000		-	-	27,000	1,467,000.00
SCOTLAND	-	-	-	-	123,614	-	123,614.00
SLOVA REP	985,000	-		-	-	-	985,000.00
SOLVENIA	18,247	-	900	-	-	1,012	20,159.00
SOUTH AFRICA	99,300	52,875	46,910	27,885	-	34,962	261,932.00
SPAIN	3,495,063	3,660,134	61,620	217,687	48,798	41,190	7,524,492.00
SWEDEN	852,167	150,173	51,341	5,935,485	808,580	415,205	8,212,951.00
SWITZERLAND	493,570	2,809,637	37,398	1,234,263	-	391,364	4,966,232.00
THAILAND	-	-		401,200	-	-	401,200.00
U.K.	11,826,280	7,247,760	11,993,013	6,939,738	11,979,834	47,004,018	96,990,643.00
U.S.A	36,847,696	18,937,020	33,092,528	7,081,806	5,148,309	8,670,007	109,777,366.00
TOTAL	100,251,674.00	111,323,022.00	62,881,351.90	41,215,659.00	31,472,375.00	102,908,409.70	450,052,491.60

SOURCE: CERTIFICATE OF ORIGIN, Ministry of Commerce and Industry, Department of External Trade.

Appendix VIII a:

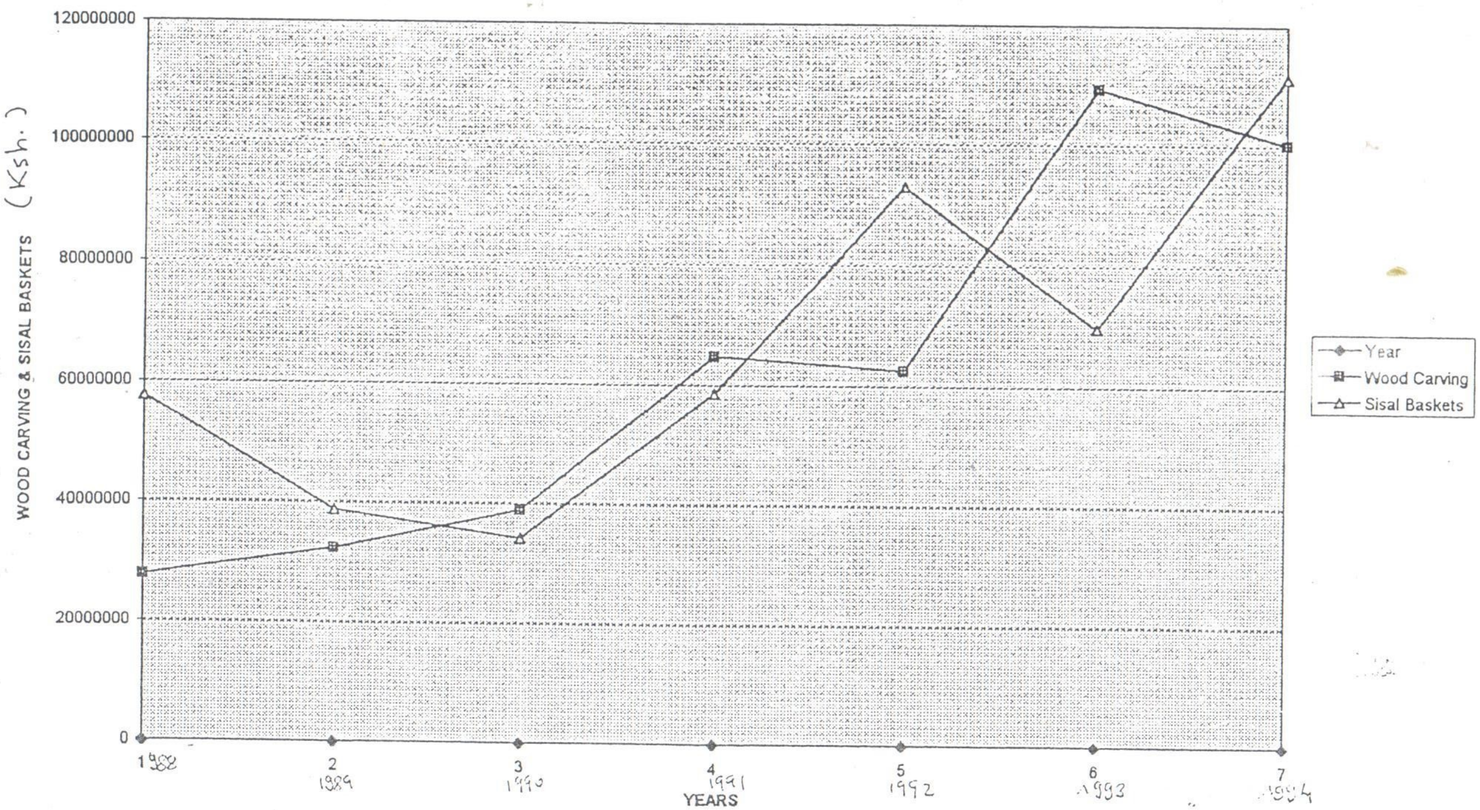
KENYA EXPORT OF HANDICRAFT CLASSIFICATION BY PRODUCTS 1989-1994

VALUE (KSH)

	1989	1990	1991	1992	1993	1994	%
WOOD CARVING	27% 32,331,582.00	28% 38,906,540.45	33.7% 64,769,584.25	23% 62,466,912.15	35% 109,451,393.15	100,251,674.00	22.28
SISAL BASKETS	33% 38,838,842.00	24.2% 34,124,294.55	30.5% 58,649,463.85	34% 92,960,082.10	22% 69,646,279.00	111,323,022.00	24.74
KISII SOAPSTONE	6% 7,720,602.00	12.5% 17,709,157.40	8.5% 16,251,338.60	8% 21,697,756.25	16% 51,092,173.00	62,881,351.90	13.97
JEWELLERY	13% 15,332,740.00	12.7% 17,834,249.50	10.7% 20,461,166.00	18% 48,942,091.20	12% 39,069,984.20	41,215,659.00	9.16
FISHING FLIES	18% 21,185,788.00	19% 26,999,003.30	11% 21,407,601.40	8% 22,042,989.00	6% 18,864,910.50	31,472,375.00	6.99
OTHERS	3,327,790.00	5,387,936.55	10,443,622.00	21,895,113.00	28,921,395.00	102,908,409.70	22.87
TOTAL	118,737,344.00	140,961,181.75	191,982,776.10	270,004,943.70	317,046,134.85	450,052,491.60	100.00

SOURCES: CERTIFICATE OF ORIGIN, Ministry of Commerce and Industry, Dept. of External Trade.

Appendix IX: Export value (Ksh) of two major handicraft products from Kenya between 1988-1994.



Appendix X:

SUMMARY OF ESTIMATES OF WOOD(BRACHYLEENA HUILLENSIS) USED BY SOME MAJOR CO-OPERATIVES

1. MOMBASA (AKAMBA) CO-OPERATIVE

Numbêr of Lorries of Wood/timber received per week

(official record)	= 2 Lorries @ average 10 tons	= 20 ton/week
1 month	= 20 x 4 weeks	= 80 tons
1 year	= 12 x 80	= 960 tons/yr

Note: Observation revealed that the co-operative receives timber far in excess of the above figure; also the sheer number of carvers within the complex cannot depend on 2 lorries per week; the demand also varies widely according to peak/low tourist seasons and the amount/volume of orders received. Moreover, some of the wood brought to the co-operative are also destined for Malindi, which has a cute shortage of supply. Therefore, the co-operative receives almost double or more than double, depending on prevailing demand and season.

2. WAMUNYU

a) Co-operative Society receives about 6 lorries/month @ average 10 tons. Thus in a year = 72 lorries x 10 = 720 tons.

b) Private Timber Merchants in Wamunyu Centre: Total number of Merchants = 11 out of these. 7 are the largest and each receives average 2 lorries @ 10 tons/week Thus, in a month 8 x 7 = 56 lorries in a year = 672 lorries or 6720 tons.

c) Number of smaller merchants = 4 Each of these receives about 1 lorry load @ 10 tons/week Thus, in a month = 16 lorries/or 160 tons/month. In a year = 192 lorries or 1920 tons

Total = (72 + 672 + 192) lorries = 936 lorries. One lorry averages 10 tons

Therefore Wamunyu = 9360 tons/year.

Note: The largest concentration of woodcarvers is found in Wamunyu area. All the above timber merchants supply the surrounding villages and about 15 satellites (woodcarving centres). Thus, Wamunyu is a 'reservoir' for the entire region. Like Mombasa, the amount received is higher than the figures given to us. We could not observe lorries arriving since they arrive at odd hours. However, one of the merchants revealed to us that the demand is often so high that in a day they receive

Appendix X (Contd.)

upto 2 lorry loads of timber. This is highly likely to be true: we observed on a market day that large a number of people who bring their curios also buy supplies of wood to take back to the villages using hired pick-up matatus, wheelbarrows and even bicycles. On one such day nearly all the supply of 3 of the 4 smaller timber yards situated within the market were bought out, as well as one strategically situated adjacent to the co-operative and beside the highway was virtually stripped but was full again in one and a half days;

It was surprising that majority of co-operative members buy members buy timber from outside because it is cheaper than theirs.

TRANSPORT OF TIMBER (COST IN WAMUNYU)

1. 1 Lorry (1 stack) of 7 tons carries 180 pieces @ 4ft and costs Kshs. 14,000/= from Nyeri.

2. 1 lorry (3 stack) of 9 tons carries 280 pieces of timber @ 4 ft and costs Kshs. 18,000/=.

3. 1 lorry (5 stack) of 14 tons carries 400 pieces of timber @ 4 ft and costs Kshs. 25,000/= from Nyeri.