

CARVING OUT INDIGENOUS TREE SPECIES TO SUSTAIN RURAL LIVELIHOOD

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ABSTRACT

Wood carving is an age old business well known for its cultural and economic significance. The industry is characterized by commercial carving activities creating employment for different categories of people in both rural and urban centres across Ghana. However, the over-dependence on a few selected indigenous tree species for carving is a source of concern, threatening local livelihoods and survival of the industry. This study sought to investigate the sources, availability and sustainability of tree species used, awareness of alternative species for carving and the contribution of the wood carving business to livelihood. It was evident that over 80% of respondents interviewed depend solely on carving business for their livelihoods. Only two tree species, which is species from the ebony group (*Diospyros spp.*) and *Holarrhena floribunda* out of the 14 tree species identified were frequently used. The study also showed that current supply of wood resources is unsustainable and there are no attempts by people in the business to establish plantations. This was attributed to difficulty in land acquisition, lack of access to credit, apathy and the long maturity period required for most forest trees. Immediate action is required to address these challenges to sustain the wood carving industry and the livelihood of the people.

Keywords: Wood carving, sustainable livelihood, indigenous tree species

INTRODUCTION

The continuous degradation and rapid loss of Ghana's forest cover over the past decades has left many forest resources to exist in isolated fragments. The past two decades has seen almost 34 percent of forest cover loss representing 2.5 million hectares (FRA, 2010) through widespread degradation. The impact of the current high rate of deforestation consequently affects the livelihoods of local communities, the derived benefit of essential environmental functions and most importantly destruction of the originality of the forest ecosystem. The positive contributions of forest ecosystems and the crucial role they play in defining the identity and culture of most local communities cannot be underestimated. Forests in

Ghana have an important role in promoting food security, increasing incomes and alleviating poverty. It is estimated that about 60 to 70 percent of the local population in Ghana depend on forest resources wholly or partly for their livelihoods and cultural purposes Amelia *et al.* (2007) also cited in Quatey (2010).

Wood carving is one indigenous craft tradition that remains vigorously pursued worldwide but can contribute to loss of biodiversity and forest cover. The wood carving industry in Kenya is seen as the largest of its kind in Africa. It is estimated to generate US\$20 million per year in export revenue (Choge *et al.*, 2005). In Ghana, wood carving began prominently in the forest areas and has retained its economic and cultural importance

for centuries. Historically, it was a form of expression based on the ideas and ideals of an entire community or ethnic group. Wood carving was considered as a leisure time work to supplement household income in the past. However the age old traditional practice has been transformed into a major commercial enterprise with enormous export potential.

Due to exposure of Ghanaian culture in the 1980's to the western world through the organization of cultural festivals and participation in international trade fairs, the industry became established on the international scene. The sale of handicraft subsequently increased significantly on the international market. In 1989, Ghana sold USD 60,000 worth of handicraft, and by 1996, more than USD 3,000,000 mostly in wood carvings were sold (Okrah, 2002). This development was partly due to the abundance and easy accessibility of raw materials mostly indigenous tree species from the forest. The huge demand for wood as the sector increasingly attracts more employment and foreign exchange and the continuous dependence of the industry on a few selected hard wood species in the wild, has so far contributed to a rapid decline in the density of such species in the natural forests. WWF-Ghana (2009) puts people currently involved in wood carving in Ghana as about 3,500 in four (4) major carving centres.

The village of Ahwia in the Ashanti region of Ghana is culturally characterized with a tradition in wood carving and carvers produce a wide range of carved wood products for sale. The focus of this paper is to assess the wood carving industry at Ahwia; the role it plays in rural livelihood and the effects of the industry on indigenous tree species in forests of Ghana.

METHODOLOGY

Study Area

The study was carried out at Ahwia a carving community located in the Kwabre district of Ashanti region of Ghana. The district shares common boundaries with Afigya Sekyere district to the north; Kumasi Metropolitan Area to the south; Ejisu Juaben Municipal to the southeast; Atwima district to the west and Offinso Municipal to the northwest. It is within latitudes $6^{\circ} 41'$ North and longitudes $1^{\circ} 33'$ to $1^{\circ} 44'$ West. The district has a total land area of 356 square kilometers constituting about 1% of the total land area of Ashanti Region. Ahwia has a total population of approximately 16,000, accounting for nearly 10 per cent of the total population of the district.

Data Collection and Analysis

Data collection was done through literature review to gather secondary data and interviews with wood carvers using structured and semi-structured questionnaires. Additional information was obtained through informal discussions with key people who have been in the wood carving business for a longer period. A reconnaissance visit was made to Ahwia before the actual administration of questionnaires.

In all a total of thirty (30) respondents were interviewed. Information gathered through the interviews covered respondent characteristics, sources of raw materials, type of tree species used, the nature and trend of the wood carving business at Ahwia and the challenges facing the industry. The data was analysed with Statistical Package for Social Scientist (SPSS) by descriptive statistics (mean, frequencies).

RESULTS AND DISCUSSION

Demographic Characteristics

The wood carving industry at Ahwia is predominantly male dominated, out of the 30 respondents interviewed; only one was a female polisher and marketer. More than half (56.7%) were natives of the carving village whilst 43.3% were settlers from other parts of the country especially the Ashanti region. The ratio of married respondents to single is 4:6. With respect to age

composition, 33.3% of those interviewed were between the ages of 20–29 years, 50% between 30–39 years, 13% between 40–50 years and 3% above 50 years (Figure 1). The mean household size was 5.6 members. Nearly all respondents (90%) had formal education with the exception of 10% who had no formal education. With regards to the respondents with formal education, 33.3% had primary education, 36.7% with secondary education, 6.7% with vocational training and 13.3% with tertiary education (Figure 2).

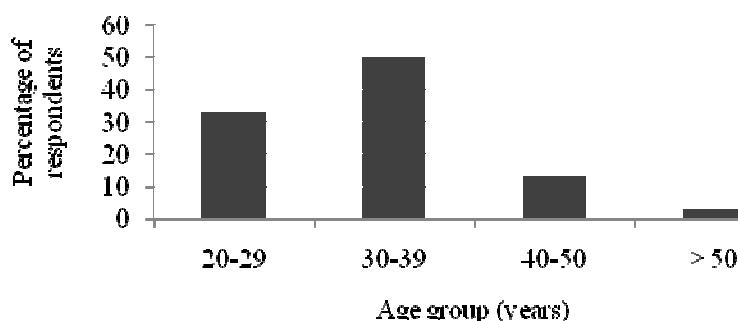


Figure 1: Age distribution of respondents

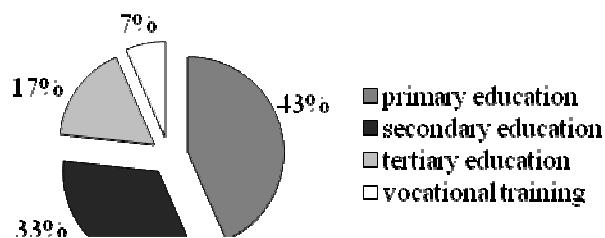


Figure 2: Educational level of respondents

Overview of Production and Marketing of Wood Carving at Ahwia

The study revealed four (4) significant key players in the production and marketing chain of the wood carving industry at Ahwia. They are the log cutters who supply the wood logs, the master carvers who carve the master piece (initial carving), the finishers whose task include sanding, filling, painting and polishing and finally the marketers. Marketing was done by displaying the wood carvings in local showrooms or by transporting them to other marketers in urban areas of the country or sold in bulk to dealers who export the products to the international market. The study also revealed the inter-linking roles played by carvers at the different stages of the production and marketing chain.

The study identified eight (8) different categories of players. Figure 3 shows the different roles of the respondents. Majority of respondents fell in categories 1 and 2. Close to a quarter of the respondents play the role of either carving the master piece, polishing and selling the finished product to buyers or to exporters or play the role of carving and handing over to polishers (category 3) for finishing before selling to consumers. Category 7 was the least represented group in the chain. All stages of the chain according to respondents attracted some sort of income.

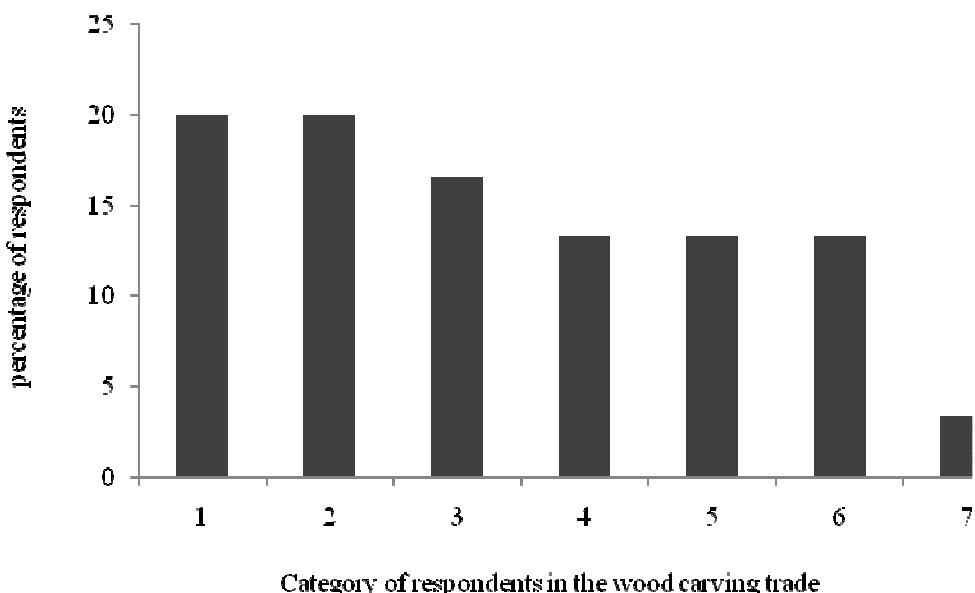


Figure 3: Roles of respondents in the carving industry

Categories: 1 = carver and marketer; 2 = carver, polisher and marketer; 3 = polisher; 4 = marketer; 5 = carver; 6 = polisher and marketer; 7 = carver and polisher.

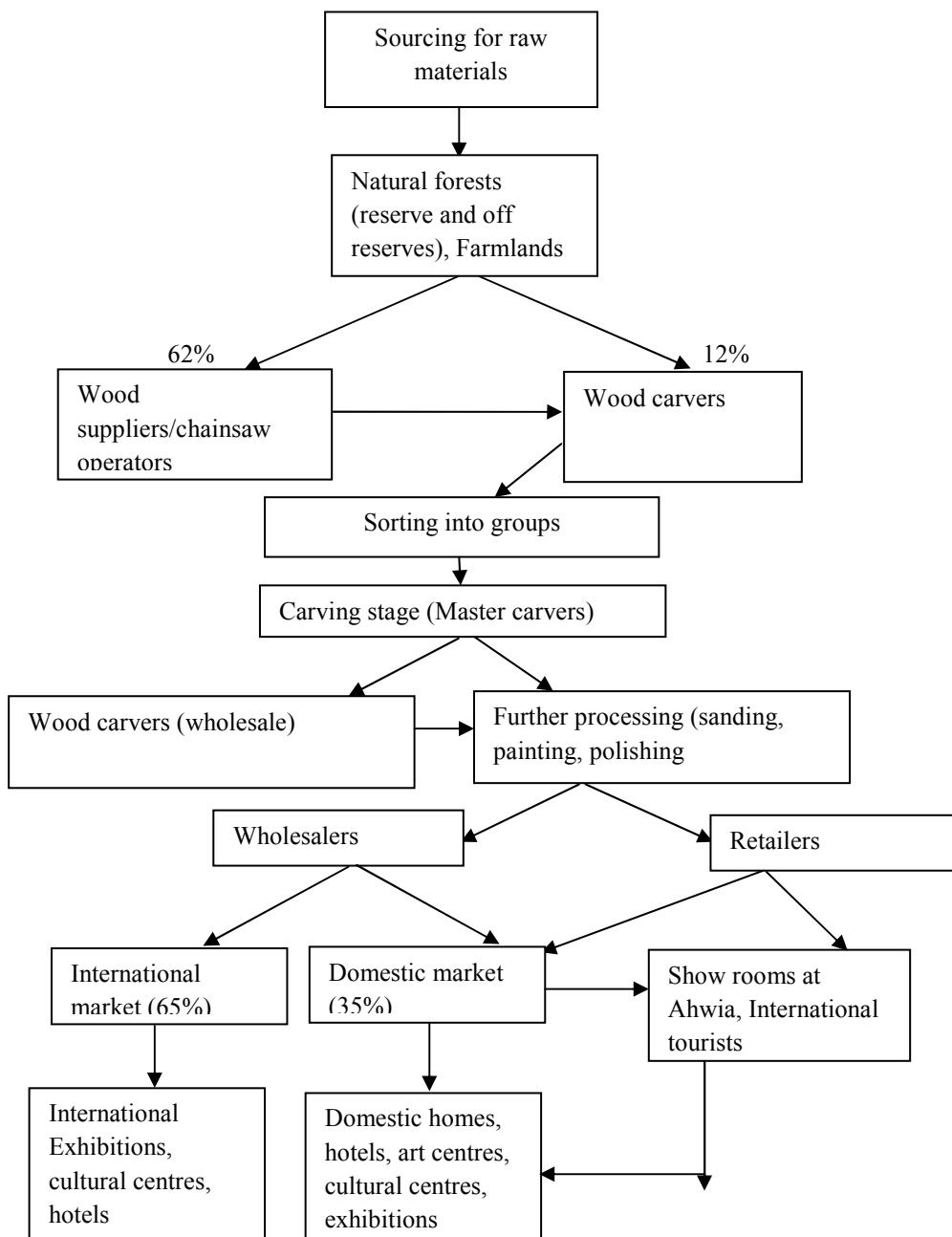


Figure 4: Stages in the wood carving business at Ahwia

Different pros and cons were given by respondents as their reasons for belonging to a particular category (Figure 3). Reasons include; lack of initial capital, time, lack of technical knowhow and poor patronage. Most respondents (75%) indicated that category 2 (carver, polisher, marketer) was the most profitable but time consuming and capital intensive whilst category 3 (polishers) was also described by 87% as being the least capital intensive category. Although an eight category (exporters) was mentioned by respondents, at the time of our interview no exporter was identified among the sampled respondents.

According to the marketers, 65% of the products end up at the international market and 35% at the domestic level. Figure 4 shows the different actors and their respective roles in the production and marketing chain of the wood carving trade at Ahwia.

Primary Tree Species as Carving Wood

A total of 14 species were mentioned by respondents as the primary species commonly used for carving (Figure 5). According to the conservation star rating by Hawthorne and Gyakari (2006), four of these species listed in Table 1 are rated as scarlet star indicating their status as species being threatened in Ghana at least, by over-exploitation, two species are rated as red star indicating a state of heavy exploitation in Ghana and four species as green star indicating a state of little conservation concern. Two of these species are rated as pink star indicating that these species are of some commercial interest. *Cedrela odorata* and *Tectona grandis* are not rated in the table because they are exotic species.

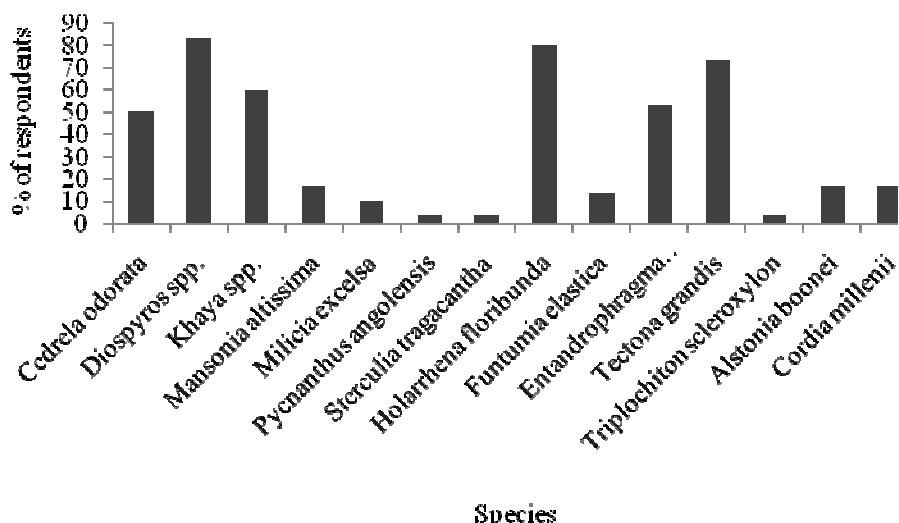


Figure 5: Tree species used in carving

A total of 83.3% of respondents mentioned *Diospyros spp.* as the main tree species commonly used for carving. Despite its perishability, the wood of *Holarrhena floribunda* known locally as “Osese” is considered by carvers as the best available white wood in Ghana because it is soft and easy to work with (Schmelzer, 2008) and this was confirmed by nearly all respondents (80%) at Ahwia. Seventy three percent mentioned *Tectona*

grandis, 60% of respondents used *Khaya spp.* as their primary carving wood and *Entandrophragma candollei* and *Cedrela odorata* were mentioned by 53% and 50% of respondents respectively. *Entandrophragma candollei* is classified as vulnerable according to IUCN red list of threatened species (Hawthorne, 1998).

Table 1: Conservation star rating for tree species used for carving at Ahwia

Tree Species	Local Name	Family	Conservation Star rating	Percentage of Respondents (%)
<i>Cedrela odorata*</i>	Gyenegyene	Meliaceae	Not rated	50.0
<i>Diospyros spp</i>	Ebony/Kusibiri	Ebenaceae	**	83.3
<i>Khaya sp</i>	Mahogany	Meliaceae	Scarlet star	60.0
<i>Mansonia altissima</i>	Oprono	Sterculiaceae	Red star	16.6
<i>Milicia excelsa</i>	Odum	Moraceae	Scarlet star	10.0
<i>Pycnanthus angolensis</i>	Otea	Myristicaceae	Red star	3.3
<i>Sterculia tragacantha</i>	Fotoraba	Sterculiaceae	Green star	3.3
<i>Holarrhena floribunda</i>	Osese	Apocynaceae	Green star	80.0
<i>Funtumia elastica</i>	Ofuntum	Apocynaceae	Green star	13.3
<i>Entandrophragma candollei</i>	Cedar	Meliaceae	Scarlet star	53.3
<i>Tectona grandis*</i>	Teak	Verbenaceae	Not rated	73.3
<i>Triplochiton scleroxylon</i>	Wawa	Sterculiaceae	Scarlet star	3.3
<i>Alstonia boonei</i>	Nyamedua	Apocynaceae	Green star	16.6
<i>Cordia platythyrea</i>	Tweneboa	Boraginaceae	Pink star	16.6

*Non-native species ** With the exception of *Diospyros sanza-minika* rated as pink star, other *Diospyros* species occurring in Ghana is rated green star.

- Black star species are globally rare and high priority for careful management
- Gold star species are globally restricted
- Blue star species are of some rarity value in Ghana
- Scarlet star species are threatened, in Ghana at least, by over-exploitation
- Red star: heavily exploited in Ghana
- Pink star: of some commercial interest

Sources of Raw Materials

Two main sources of raw materials are the natural forest including reserve and off-reserve areas and farmlands. Eighty three percent of the carvers obtained their carving wood from both natural forest and farm lands, 13% and 3% also obtained their carving wood from natural forest only and farm lands respectively (Figure 6).

Perceptions on the Status of Tree Species used in Carving

Wood species are lost mainly as a result of the high demand for lumber for different wood products and has contributed to the continuous and fast decline of most indigenous tree species in Ghana's natural forest. According to Birikorang *et al.* (2008), illegal timber harvesting reached 1.7 million m³ in 2008, supplying about 40% of the needs of formal industry and more than 80% of the informal (mainly domestic) sector needs. In a similar context, an alarming quantity of an approximately 50,000 hardwood tree species (e.g. ebony – *Dalbergia melanoxylon*) per year are carved in Kenya (Hoyle, 2007).

From the perspective of the wood carvers interviewed, primary tree species used for carving have continually decreased in recent times causing a shift towards alternative species which were previously not used for carving. In terms of availability and accessibility of tree species used in carving, a three level ranking is used to access the perception on the status of tree species used for carving (Table 2). *Milicia excelsa* is ranked by 66.7% of respondents as highly scarce, whiles *Triplochiton scleroxylon* and *Cordia mellinii* are ranked by 76.6% and 86.7% as scarce respectively. Some few tree species (*Diospyros spp.*, *Mansonia altissima*, *Triplochiton scleroxylon*, *Entandrophragma candolei*) were ranked by quite a high proportion of carvers as moderately available. The most preferred species outlined in Table 1 (*Diospyros spp.*, *Holarrhena floribunda*, *Tectona grandis* and *Khaya spp.*) according to the high proportion of wood carvers ranking them as their primary species are either rated as green star or not rated at all or in their perception are moderately available.

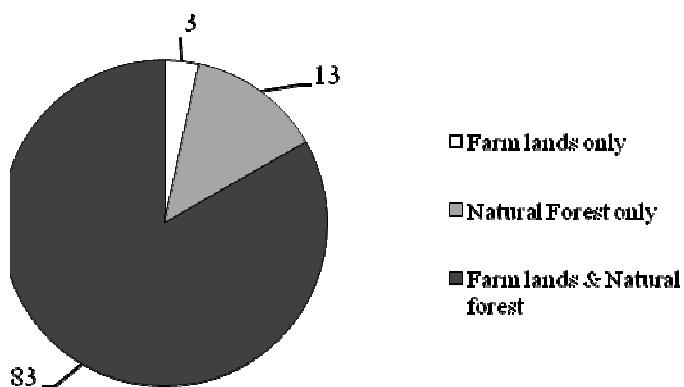


Figure 6: Percentage of respondents and their sources of wood

Table 2: Perception level of availability of tree species used in carving

Tree Species	Rank of level of availability			
	Readily available	moderately available	Scarce	Highly scarce
		Percentage of respondents (%)		
<i>Cedrela odorata</i>	60.0	40	0	0
<i>Diospyros spp.</i>	9.5	66.7	0	23.8
<i>Khaya spp.</i>	8.3	16.7	50	25.0
<i>Mansonia altissima</i>	0	50.0	50.0	0
<i>Milicia excelsa</i>	0	0	33.3	66.7
<i>Pycnanthus angolensis</i>	15.0	30.0	50	5.0
<i>Sterculia tragacantha</i>	70.0	30.0	0	0
<i>Holarrhena floribunda</i>	0	23.0	57.0	20.0
<i>Funtumia elastica</i>	80.0	10.0	10.0	0
<i>Entandrophragma candolei</i>	21.7	60.9	13.0	4.3
<i>Tectona grandis</i>	50.0	18.8	31.2	0
<i>Triplochiton scleroxylon</i>	0	0	76.6	23.3
<i>Alstonia boonei</i>	25.0	50.0	25.0	0
<i>Cordia mellinii</i>	0	0	86.7	13.3

Socio-economic Dimensions of Wood Carving and Sustainable Livelihood

The dependence on wood carving to sustain livelihoods at Ahwia cannot be over emphasized. Nearly all the respondents interviewed had one or two members of their household involved in the business as joint ownership or as an apprentice under training. Statistically, 50% of the 30 respondents had two household members involved in the wood carving trade with them, 37% had only one household member involved and 10% with three household members involved. Only one person (3%) did not have any household member involved in their wood carving business. This

confirms the findings of Ghana statistical service survey (GSS, 2002) which placed wood carving as one of the major economic activity in Ahwia.

Wood carving remains a predominant occupation in Ahwia employing all categories of age classes. Respondents have been engaged in the wood carving business from up to 5 years to more than 15 years (Figure 7). It presents an important household income source and has the potential to sustain rural livelihood. 87% of respondents are involved in the wood carving trade as their main livelihood activity with no additional alternative or secondary job. 13.3% on the other hand have other livelihood activities like farming, driving or

trading in assorted goods besides wood carving. Wood carving also contributes from 20 to 100% of respondents' household income (Table 3). For 72.4% of respondents, wood carving accounts for

70% to 100% of household income. Only few respondents (3.4%) had wood carving contributing up to 29% of household income.

Table 3: Proportion of monthly income derived from wood carving

Percentage of monthly income (%)	Respondents (%)
Up to 29	3.4
30-39	0.0
40-49	0.0
50-59	13.8
60-69	10.3
70-100	72.4

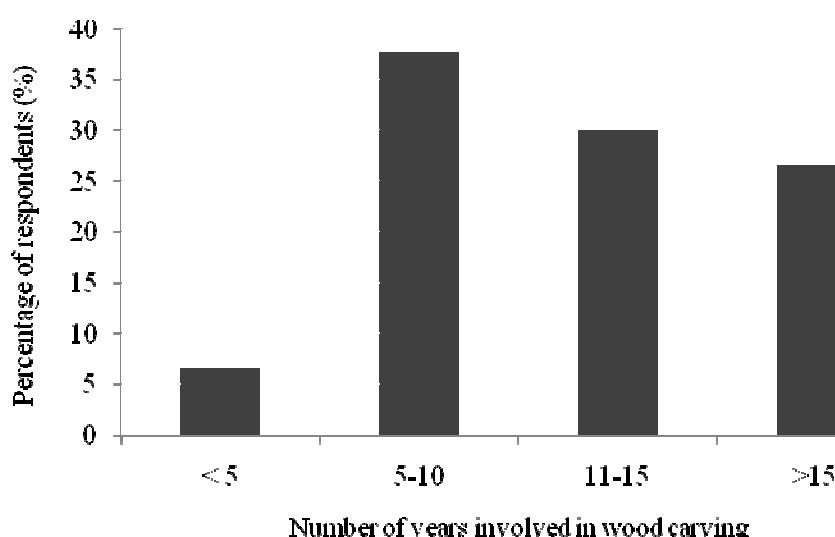


Figure 7: Years involved in wood carving as a sustainable livelihood

Options for Conservation of Indigenous Carving Wood Species for Sustainability

A worrying phenomenon is the continuous depletion of most indigenous species with no effort of reforestation to meet future demands. Nearly all the respondents (97%) indicated the unsustainability of the current supply of wood resource for their business, with 3% being uncertain about the status of wood resources to sustain their carving business.

Although the study revealed that the wood carvers were organized in groups and associations, effort towards tree planting initiatives is not a high priority compared to finding access to credit facilities to improve their business. Only 7% of respondents are involved in individual tree planting initiative to supplement tree species obtained from the natural forest. 93% of the respondents on the other hand do not have any tree planting initiatives to sustain the supply of wood resources for their business.

According to Seidu (2010) a shift from the use of the fast diminishing preferred species such as *Holarrhena floribunda*, *Cordia spp.* and *Diospyros spp.* to suitable fast growing species such as *Azadirachta indica* and *Cedrela odorata* could sustain the increasing raw material demands of the wood carving industry, thus sustaining livelihoods. In the case of wood carvers in Kenya, going through a period of dwindling hardwood resources which threatened their livelihood, resulted in the emergence of farm forestry of alternative fast growing carving wood species to sustain the industry (UNESCO, 1999). According to Schmitt (2005), some wood carvers in Kenya are currently organized into associations and are involved in plantation establishment with an FSC certification which enables them to produce certified carved products for the international market.

CONCLUSION AND RECOMMENDATION

Wood carving at Ahwia remains primarily a dominant occupation and can be described as a family owned business. The study revealed that apart from the owner of the business, one or more household member is involved in the process. The carvers are organized into groups and associations purposely to access credit facilities and to promote discipline and order in the business. Although the dwindling status of carving wood species is acknowledged by carvers, efforts to ensure sustainable wood supply such as tree planting initiatives remains a low priority among carvers. Further, the wood carving business remains a significant component of the tourism sector. The study revealed that a higher proportion of carved products at Ahwia are patronized by foreign tourists on vacation. It continues to create employment opportunities for both the young and old but most importantly the youth. The average age range of respondents involved in the business remains the active age group of 30 – 39 years.

As the indigenous tree resources for wood carving are increasingly becoming scarce, it is prudent to consider the development of alternative fast growing carving wood species to sustain the industry and livelihoods at large. Strengthening wood carvers associations, training in best practices and learning from experiences in other countries like Kenya and Tanzania where the industry has transformed and developed through strengthened associations and farm grown plantations establishment of fast growing carving wood species to sustain their industry is highly recommended.

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