

## THE IMPACT OF TREE TENURE AND ACCESS ON CHAINSAW MILLING IN GHANA

E. Acheampong<sup>1</sup> and E. Marfo<sup>2</sup>

<sup>1</sup> Faculty of Renewable Natural Resources, Kwame Nkrumah University of Science and Technology, Kumasi, Ghana

<sup>2</sup> CSIR-Forestry Research Institute of Ghana, University Post Office Box 63, KNUST, Kumasi Ghana

### ABSTRACT

*Chainsaw milling in Ghana has been banned and criminalized since 1998. However, the implementation of the ban has been very difficult and largely unsuccessful. One of the several reasons that have been identified to explain the continuation and expansion of the activity is the lack of clarity over forest and tree tenure, particularly tenure of trees on farms. This has resulted in strong support of some local communities for 'illegal' chainsaw operations. Even though forest and tree tenure and access rights have been identified as contributing to 'illegal' chainsawing, the connection between tenure and 'illegal' chainsawing has not been systematically assessed. The paper presents results from a study that sought to understand the extent to which tree tenure and access impact or influence chainsaw milling. Results of the study indicate that community resentment of the current system of timber tree tenure is a factor that facilitates the acceptance of chainsaw operators in the communities they operate. Indeed, the farmer plays an important role in facilitating access to timber trees by 'illegal' chainsaw operators. Enforcement of the ban on chainsaw lumber production and sale and the restrictive forest and tree tenure arrangement in Ghana are major factors that limit the accessibility of chainsaw operators to timber trees. The paper contends that forest management systems, which are deliberately designed to sustain and develop the value of forests for people living near them, will gain support for long-term, sustainable management. This will require security of access to forest resources, local incentives to protect the forest and its timber resources and the involvement of local communities in forest management.*

**Keywords:** Chainsaw milling, forest governance, forest and tree tenure, access rights, livelihoods

### INTRODUCTION

Forest resources contribute greatly to rural livelihoods and to the national economy of Ghana. The Forestry Sector contributes about 6% of the country's gross domestic product (GDP), employs about 100,000 people and provides direct and indirect livelihood to about 2.5 million people in the country (DFID, 2007; Forestry Commission, 2003; MLF, 1997/9, cited in Brown, 1999; Asiseh

*et al.*, 1996; TEDB, 1995). However, the rainforest in Ghana has experienced rapid depletion due to various human activities such as logging, 'illegal' chainsawing, charcoal burning, farming, bush fires, surface mining and urbanization (Kusimi, 2008; Forestry Commission, 2003). The Forestry Commission asserts that, during the last century, the area of high forest dwindled from 8.2 million hectares to about 1.6 million hectares with an average annual

deforestation rate of 65, 000 hectares (Forestry Commission, 2003; see also DFID, 2007). The impact of deforestation in Ghana is widespread, affecting the livelihoods of local people and disrupting the tropical ecosystem. Among the causes of forest loss listed above, the one cause that has generated protracted public debate, and which has been pervasive and contested in the forest governance discourse in Ghana is 'illegal' chainsaw lumbering and milling. Agyeman (2004) reported that 'illegal' chainsaw operation is one of the major factors contributing to the rapid decline of forest resources in Ghana.

The main option for dealing with the chainsaw issue has been to ban and criminalize the activity. However, the implementation of the law has been very difficult and largely unsuccessful. The ban on chainsaw milling and its associated lumber trade have been ineffective to date. One of the several reasons that have been identified to explain the continuation and expansion of 'illegal' chainsaw milling in Ghana is the lack of clarity over forest and tree tenure, particularly tenure of trees on farms (Odoom, 2005; Marfo 2004; Agyeman, 2003; 2004). This has resulted in strong support of some local communities for 'illegal' chainsaw operations. Even though this is generally accepted, it is not clear who are the main actors within the community who facilitate operators' access to timber resources. However, there is increasing evidence that farmers continue to play significant role in this illegality by conniving with chainsaw operators (Lambini *et al.*, 2005). Odoom (2005) also asserts that the alienation of traditional authorities and tree tenure insecurity on the part of farmers have promoted their connivance with, and participation in, the chainsaw lumber trade. It has been identified that such cooperation with 'illegal' chainsaw operators offers better economic incentive to farmers than official logging arrangements (Marfo, 2004).

Forest and tree ownership rights and other tenure issues, to a large extent, determine ease of access of trees for chainsaw operations. Notwithstanding this, very little empirical studies attempt to unearth the linkages between forest and tree tenure and 'illegal' chainsaw milling. This study sought to understand the extent to which tree tenure and access impact or influence chainsaw milling. Specifically, the study sought to address the following research questions:

- What are the important sources of timber for chainsaw operators?
- How do chainsaw operators establish community contacts to improve their access to timber resources?
- What is the view of chainsaw operators with respect to their right to access timber?
- Which factors influence the accessibility of chainsaw operators to timber trees?
- What rights do chainsaw operators perceive will encourage their compliance with timber logging regulations?

The paper is structured by first presenting a brief review of the existing forest and tree tenure arrangements in Ghana. The subsequent section provides a description of the methodology used for data collection and analysis. Following this, the results are presented and discussed. In the concluding sections, the main findings of the study are highlighted and their implications for the management of forest and timber resources considered.

### **Existing Forest and Tree Tenure Arrangements in Ghana**

Security of tenure of natural resources is an important issue if local communities are to use the natural resources in their localities sustainably. Forest and tree tenure simply refers to the terms and conditions on which forests and trees are held and used (Bruce, 1986). It includes questions of

both ownership and access or use rights. The set of rights that a person or some private entity holds to forests or trees may include the right to own, to inherit, to plant, to dispose of and to prevent others from using trees and tree products (Fortmann, 1985). Tenure is not a matter of man's relationship to natural resources such as forests and trees. It is a matter of relationships between individuals and groups of individuals in which rights and obligations with respect to control and use of natural resources are defined. It is thus a social institution (Birgegard, 1993). One of the factors that affect the level and type of consumptive utilisation of forests in many settings is the security of tenure that local residents possess in relation to forests. Individuals who lack secure rights are strongly tempted to use up these resources before they are lost to the harvesting efforts of others (Banana and Gomya-Ssembajjwe, 1998). Similarly, where forest habitats have little economic value to local people because of restrictive access rules, sustainable local management institutions are unlikely to emerge (Lawry, 1990). Tenure therefore determines, in large part, whether local people are willing to participate in the management and protection of forest and tree resources.

Forest and tree tenure arrangements and timber logging rights in Ghana, especially in the off-reserve areas of the high forest zone (HFZ), is highly complex. Depending on whether trees are planted or are naturally occurring and whether they occur on family, communal or rented land, several usufruct rights exist. Thus, tree tenure systems operating in forest reserves are different from those outside reserves. In off-reserve areas, tree tenures are also different for planted trees compared to those growing naturally, and for timber trees compared with non-timber species (Marfo, 2006; Acheampong, 2003; Agyeman, 1993; Asare, 1986). These differences are considered below.

### ***Rights to Planted Trees outside Reserves***

In a study of indigenous tenures relating to trees and forests, Asare (1986) observed that, in most parts of the HFZ, any individual (man or woman) who has the right to use a piece of land in perpetuity also has the right to plant any species of trees, and such trees are vested in the planter/cultivator. In a study of the extent and manner in which forest-based resources form part of livelihood structures of forest fringe communities in the Asankrangwa Forest District, Acheampong (2003) also noted that people generally have more secure rights to planted trees than those occurring naturally. The planter can will trees planted on privately acquired land to anyone he likes. However, trees that are planted on family or lineage lands can only be inherited by members of the lineage group.

Strangers who have acquired long-term title or right to the use of land through some form of agreement (such as granting on leasehold basis) also have the right to plant and use any species of tree. However, strangers with temporary use of land do not have the right to plant permanent trees on those lands (Asare, 1986). Although customary laws do not prevent tenants from planting trees, landowners do not encourage this because most people believe that the long production period and the lack of appropriate documentation of land ownership increases the security of the tenant to land rights when trees are planted. Thus, an attempt by a tenant to plant trees is regarded as an attempt to acquire permanent ownership of land. This appears to be a common practice throughout much of Africa (Arnold and Bird, 1999; Warner, 1993; Agyeman, 1993).

### ***Rights to Naturally-Occurring Trees outside Reserves***

Rights to naturally-occurring trees outside reserves

vary between timber and non-timber species. In the case of non-timber trees (such as kola, oil palm, raphia palm, bamboo, etc.), the rights also depend on whether the tree has some commercial value or it is for subsistence use only (Acheampong, 2003; Asare, 1986). Rights to naturally-occurring non-timber trees that have some commercial value, such as kola, oil palm, and raphia palm, are restricted and are vested in the landowner. For example, only landowners or people who have perpetual use of land on which kola or oil palm trees occur can harvest the fruits. The right to naturally-occurring non-timber trees that are only of subsistence value is very much more relaxed. For example, bamboo and fruit trees (such as pawpaw, *Dacryodes klaineana*, *Chrysophyllum albidum*, *Spondias monbin*, etc.) can be collected from anywhere without permission from the landowner provided crops are not damaged (Asare, 1986).

All naturally-occurring timber trees - whether on private or on communal land, or even on private farms - however, 'belong' to the government. The use of such trees is controlled by legislation and it is an offence for an individual or community to cut or sell timber or merchantable tree species without permission from the appropriate government institution. The right to control and manage tree resources, including allocation of logging rights, is vested in the state (cf. Matose, 2002). Farmers have no legal rights, either to harvest timber trees they maintain on their farms, or to any of the revenue accruing to timber extraction, though they continue to exercise judgement over which trees to maintain on their farms during clearing for cultivation (Amanor, 1999, cited in Marfo, 2006). This is a strong disincentive to farmer tree management and protection (Ardayfio-Schandorf *et al.*, 2007).

### ***Rights to Trees and other Products in Forest Reserves***

In pre-colonial Ghana (then called the Gold Coast), forests were owned in common by communities (families, clans and 'stools'). However, the country's Forest Ordinance of 1927 gave authority to the colonial government to reserve parts of the country's forests. Although the bill did not alter ownership of the forest reserves, it vested control of them in the government of Ghana and prescribed that they should be held in trust for the communities. Thus, all forest products within forest reserves, including both timber and non-timber tree species and even NTFPs are vested in the government (Owubah *et al.* 2001). Although, in theory, the ownership of land and forests did not alter at the time of reservation, in practice, the traditional owners have no right of access to the trees or land in the reserve, except on permit from the competent government authority, the Forest Services Division (FSD).

## **DATA AND METHODS**

Based on expert advice from the Forest Research Institute of Ghana (FORIG) and the regional office of the FSD, the study was conducted in three Forest Districts (Nkawie, Juaso, and Goaso) due to their vast areas of off-reserve logging operations and their reputation of persistent 'illegal' chainsaw operations. Five communities were visited in the three districts: Juaso and Obogu in the Juaso Forest District; Goaso and Akrodie in the Goaso Forest District; and Akota in the Nkawie Forest District. A total of 50 chainsaw operators were drawn from the five communities for the study. This was based on the qualitative criteria of Bernard (1995) suggesting that a sample size of 30-50 is adequate for such an explorative study. The selection of operators was purposive, considering only those that are actively involved in chainsaw milling.

Because of the illegality of the chainsaw milling business, contact with the operators was negotiated with the assistance of facilitators who are field staff of the FC and have been involved with the control or assessment of chainsawing in the past. The facilitators contacted the relevant respondents to arrange a date and time for the fieldwork. After contact with the operators, semi-structured questionnaires were used for data collection. The questionnaires were designed to obtain data on chainsaw operators' views on their right to harvest timber trees; their most important source of timber and reasons behind this; effect of the current system of tree tenure on access to timber by chainsaw operators; community contacts for access to timber; factors that limit the accessibility of chainsaw operators to timber trees; and rights that will encourage chainsaw operators to stop chainsaw milling. To complement data obtained through the questionnaires, a desk study was undertaken to review existing information on forest and tree tenure in Ghana and to understand the connections between tenure and sustainable resource management.

Responses obtained through the questionnaire administration were assigned numerical codes and SPSS was used to summarise and analyse the data. Simple descriptive statistics and frequencies were generated. Cross tabulations of relevant variables were also done to reveal patterns and relationships.

## RESULTS AND DISCUSSION

### Sources of Timber for Chainsaw Operators

To understand the relative importance of sources of timber for chainsaw operations, the operators were asked to state their most important source of timber (Table 1). Most of the respondents (76%) named the farm as their most important source of timber. This is followed by forest reserves (12%), fallow areas (10%) and water courses (2%).

Table 1: Relative importance of sources of timber for chainsaw operations

Source	Number of respondents	Percentage of respondents
Forest reserves	6	12
Fallow areas	5	10
Farms	38	76
Water courses	1	2
Total	50	100

The respondents gave several reasons for considering these areas their most important source of timber. For example, out of the 38 respondents who considered the farm as their most important source of timber, 16% mentioned availability of timber as their reason for sourcing timber from this area, 26% mentioned easy access to timber, 13% indicated that they are less likely to be arrested when they harvest from the farm, while another 26% maintained that they source timber from farms in order to open up the farms and encourage crops to grow well. Nearly 11% of the respondents mentioned availability of good and quality timber as their reason for sourcing timber from the farm while 2% each mentioned invitation by farmers to harvest from their land and the ban on access to forest reserves (Table 2). The few (2%) who stated that the farm is their most important source of timber because harvesting from the farm does not destroy crops is misleading. This is because there is very little or nothing one can do to reduce damage to crops if the tree being harvested is standing in a crop farm (Adam *et al.*, 2007b).

These findings emphasize the strong support of some local communities for 'illegal' chainsaw operations. There is increasing evidence that farmers continue to play significant role in this illegality by conniving with chainsaw operators (Lambini *et al.*, 2005). With majority of operators reporting that the farm is their most important source of timber trees, and citing easy access to trees on farms and opening up of farms to help crops grow well as their most important reasons, the farmer plays a pivotal role in facilitating access to timber trees by 'illegal' chainsaw operators.

### Community Contacts for Access to Timber Resources

Exploring issues of tenure and access rights and how they influence the accessibility of chainsaw millers to timber, the respondents were asked to mention the categories of people they normally contact to gain access to trees for their milling operations.

Table 2: Operators' reasons for considering certain areas their most important source of timber

Reasons	Most important source of timber (% of respondents)			
	Forest reserves	Fallow areas	Farms	Water courses
Availability of timber resources in the area	50	60	15.8	0
Help open up farms and also help crops to grow well	0	0	26.3	0
Harvesting in this area does not destroy farm crops	0	40	2.6	0
Less likely to be arrested	0	0	13.2	0
Availability of good and quality timber	50	0	10.5	0
Easy access to trees/timber	0	0	26.3	0
Farmers invite me to harvest from their land	0	0	2.6	100
Because of the ban on reserves	0	0	2.6	0
Total number of respondents	6	5	38	1

The majority of them (80%) mentioned the farmer while 2% each said that they normally contact either the Assemblyman or Forestry Staff. Twelve percent of the respondents, however, indicated that they do not contact any person to gain access to trees (Figure 1). This observation is important as it further confirms the role of farmers in chainsaw milling.

Several reasons were given to explain why they contact such people. For example, 85% of the 40 respondents who said they normally contact the farmer indicated that they do so because the farmer is the landowner and can give them access to the land and trees. A little over 12% of them were of the view that they contact the farmer because the farmer is the one they can bargain or

negotiate with, while about 2% reported that they contact the farmer because they do not need permit to harvest from the farm – they just have to ‘see’ the farmer. One of the two people who said they normally contact the Assemblyman reported that he does so because the Assemblymen are close to the operators and so they are able to negotiate with them, while the other person maintained that he contacts the Assemblymen because they harass the operators if they do not contact them. Even though this observation might seem insignificant, it does suggest that local political leaders can have some role to play in forest management. All the respondents that said they normally contact forestry staff indicated that they do so because the foresters are the people who manage the forest (Table 3).

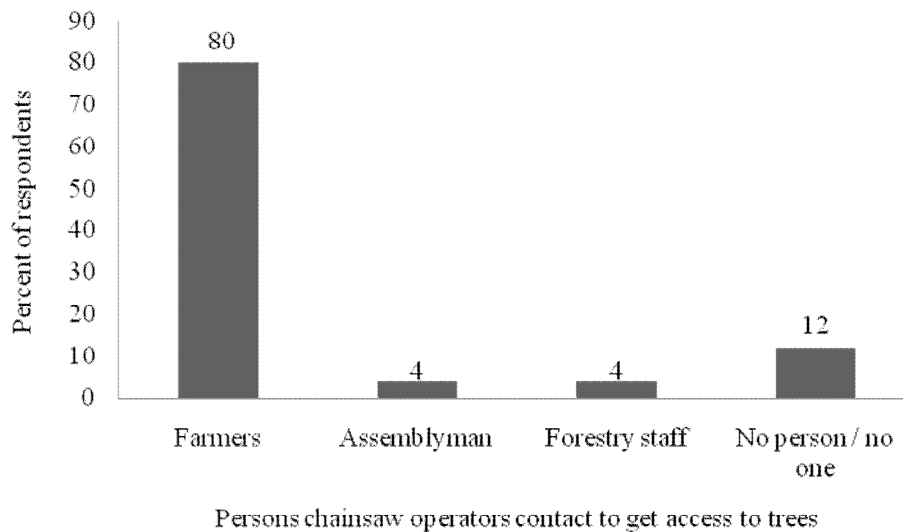


Figure 1: Persons chainsaw operators indicated they contact to get access to trees for milling (N= 50)

Table 3: Persons chainsaw operators contact to get access to trees and the reasons for contacting such persons

Reasons for contacting such persons	Persons operators contact to gain access to trees (% of respondents)				Total percentage
	Farmer	Assemblyman	Forestry staff	No person	
Because the farmer is the landowner and can give me access to the land and trees	85	0	0	0	68
Because the farmer is the person I can bargain with	12.5	0	0	0	10
Because I don't need permit to harvest from the farm, I just have to see the farmer	2.5	0	0	0	2
Because I know chainsaw lumbering is illegal	0	0	0	83.3	10
They are close to us so we are able to negotiate with them	0	50	0	0	2
Because they manage/protect the forest	0	0	100	0	4
Because I normally harvest trees from forest reserves	0	0	0	16.7	2
Because they harass you if you don't contact them	0	50	0	0	2
Total number of respondents	40	2	2	6	50 (100%)

### Chainsaw Operators' Views on their Right to Harvest Timber

In order to understand the views and perceptions of 'illegal' chainsaw millers on timber harvesting rights, they were asked whether they have ever been arrested by the FSD for harvesting timber, and whether they think they have the right to harvest timber from their own farms or land. The

vast majority (98%) reported that they have been arrested before. Thus, the fact that they are still in business goes to confirm that enforcement of the ban on chainsaw lumbering has not been effective and punishments not sufficiently punitive. On their right to harvest timber, 12% insisted that they have the right to harvest timber from their own land while the majority (88%) accepted that they do not have the right to harvest timber from their



own farms. Thus, to a large extent, we can argue that chainsaw milling is more of a defiance activity due to economic necessity rather than defence of any tenure right over forests or trees. It also contests the opinion that people are involved in chainsaw milling because they do not know that their actions are illegal. Since ignorance does not seem to be a root problem, advocating for more education on the illegality of chainsaw milling may not be an effective strategy to deal with the chainsaw issue.

The operators gave several reasons to explain why they think they have or do not have the right to harvest timber trees from their own land. Of the 44 respondents who indicated that they do not

have the right, about 61% said this is because timber trees belong to the government or state, 32% maintained that it is against the law to do so, while a few (7%) said that they do not have the right because they need to get permit from the FSD before they can harvest. The majority (83%) of those that claimed they have the right to harvest timber trees from their land said this is because the land belongs to them and so they should have access to the land and trees on the land. The remaining 17% maintained that they have the right to harvest timber trees from their land because they have easy access to the trees (Table 4). Thus, their claim of right is based more on natural justice and morality rather than in reference to any specific customary or statutory law in force.

Table 4: Reasons for chainsaw operators' views on their right to harvest timber from their own farm or land

Reasons	Right to harvest timber trees from own farm or land (% of respondents)		Total percentage
	Yes, I have the right	No, I don't have the right	
Because timber trees belong to the state/government	0	61.4	54
Because the land belongs to me and so I should have access to the land and trees	83.3	0	10
Because I have to get permit from forestry before I harvest /I have no permit	0	6.8	6
Because it is against the law to do so and you can be arrested	0	31.8	28
Because the tree is on my land and I have easy access to it	16.7	0	2
Total number of respondents	6	44	50 (100%)

### Factors that Limit the Accessibility of Chainsaw Operators to Timber Trees

The operators complained that a number of factors limit their accessibility to timber trees for their milling operations. Most of the respondents (86%) mentioned increased enforcement of the ban on chainsaw lumber production and sale as the major setback to their operations. A significant number of the respondents (44%) also maintained that the restrictive forest and tree tenure arrangement in the country is thwarting their activities.

Other factors reported are competition from conventional sawmill activities (20% of respondents), travelling long distances to get timber to mill (40%), depletion or reduced availability of timber resources (24%) and increased number of operators involved in chainsaw lumbering (6% of respondents) (Table 5). Even though enforcement of the ban has been observed to be largely ineffective, it is still reported by most operators as a limiting factor. Reconciling observations made in various studies, it is more likely that the informal payments to FSD and law enforcement agencies are the root factors bothering operators. The last factor seems to confirm that chainsaw operators are increasing in number (Marfo and Acheampong, 2009).

Table 5: Factors that limit the accessibility of operators to timber trees

Factors that limit accessibility	Number of respondents*	Percentage of respondents*	Total number of respondents
Competition from conventional sawmill activities	10	20	50
Increased enforcement of the ban on chainsaw operations	43	86	50
Restrictive forest and tree tenure arrangements	22	44	50
Depletion of timber resources	12	24	50
Increased number of operators involved in chainsaw lumbering	3	6	50
Travelling long distances to get timber due to scarcity	20	40	50
Cost involved in the operation	2	4	50

\*Number and percentage of respondents do not add up to 50 and 100 respectively because of multiple responses.

The mention of restrictive forest and tree tenure arrangements and ban on chainsaw milling as limiting access to timber trees is particularly challenging. Despite this ban, chainsaw lumbering operations continue and are currently reported by the FSD to be on the increase (Odoom, 2005). As has already been discussed, the continuation and expansion of 'illegal' chainsaw milling in Ghana is, in part, due to the lack of clarity over forest and tree tenure, particularly tenure of trees on farms (Odoom, 2005; Marfo, 2004; Agyeman, 2004). This is because the potential of forest and tree resources to continually support the livelihoods of the rural poor depends on the security of tenure that local residents possess related to forests, their perceptions and attitudes towards the resource, and how they manage it. People who lack secure rights to the continued use of forests often show little sense of custodianship or stewardship towards the resource and may not have any sense of responsibility towards sustainable management of the resource (Banana and Gomya-Ssembajjwe, 1998; Byron and Arnold, 1997). Rather than fostering a responsible attitude towards forest resources, the forest and tree tenure arrangement in Ghana does just the reverse. It creates a sense of alienation, which is a strong disincentive to local management of forests. For example, it has meant people adopting destructive harvesting practices

(Townson, 1995; Falconer, 1992). Local communities want less restricted access to forests and resent this form of exclusion.

### **Rights that will encourage chainsaw Operators to stop Chainsaw Milling**

Guided by the five rights described by Hackett (2001) as constituting the bundle of rights usually referred to as ownership, the respondents were asked to choose the rights which, when conferred on them or the local community, will encourage them to stop chainsaw operations. The five rights were defined as follows: (1) Right of access: the right to use (but not harvest) forest resources; (2) Right of withdrawal: the right to both access forest resources and withdraw resource units (harvest); (3) Right of management: the right to manage the use, maintenance, and monitoring of forest resources; (4) Right of exclusion: the right to determine the rules governing who can and cannot use forest resources; and (5) Right of alienation: the right to sell or transfer timber trees and other forest products to other people.

Even though the respondents had the opportunity to choose all the rights, none of them selected this option (see Table 6).

Table 6: Chainsaw operators' views about rights that will encourage them to stop chainsaw activities

Types of rights	Number of respondents	Percentage of respondents
Right of withdrawal	27	54
Right of management	20	40
Right of alienation	2	4
Not sure	1	2
Total number of respondents	50	100

For the majority of the operators (54%), right of withdrawal was enough to encourage them to put a stop to chainsaw activities. Forty percent of them mentioned right of management while 4% maintained that they need the right of alienation. One person, however, was not sure about the type of right that will inspire him to do away with chainsaw milling.

Indeed, the majority of respondents (80%) reported that they would like to see a change in the way timber trees and forests are currently owned and managed in Ghana. They proposed several changes and modifications to the existing forest and tree tenure system and gave reasons for their views. Tables 7 and 8 summarize these views and the reasons behind them.

Table 7: Chainsaw Operators views on how timber trees and forests should be owned and managed

Direction of change	Number of respondents	Percentage of respondents
Ownership and management rights should be given to the Assemblymen	6	15
Ownership and management rights should be given to Chiefs	12	30
Forests should be owned/managed by the government, but we should have easy access to permit to harvest timber	11	27.5
Chiefs and the FSD should manage the forest	1	2.5
We should be allowed to fell timber trees	1	2.5
Forests should be managed by the FSD	2	5
Forests and trees should be managed by Chiefs and the Assemblymen	1	2.5
Forest and trees should be owned and managed by community members	2	5
Forests and trees should be managed by Chainsaw operators	2	5
Cannot describe the direction of change	2	5
Total number of respondents	40	100

Table 8: Reasons behind the views on how timber trees and forests should be owned and managed

Direction of change	Reasons given by operators
Ownership and management rights should be given to the Assemblymen	<ul style="list-style-type: none"> <li>• For easy access to timber trees</li> <li>• We feel more comfortable working under the Assemblyman</li> </ul>
Ownership and management rights should be given to chiefs	<ul style="list-style-type: none"> <li>• For easy access to timber trees</li> <li>• Because the chief has authority to allow people access or not</li> <li>• Because they are the custodians of the land</li> </ul>
Forests should be owned/managed by the government, but we should have easy access to permit to harvest timber	<ul style="list-style-type: none"> <li>• For easy access to timber trees</li> <li>• So that we can operate freely and avoid arrest by the FSD</li> <li>• To avoid conflict between TUC holders and Chainsaw operators</li> </ul>
Chiefs and the FSD should manage the forest	<ul style="list-style-type: none"> <li>• Could not provide any reason</li> </ul>
We should be allowed to fell trees	<ul style="list-style-type: none"> <li>• Could not provide any reason</li> </ul>
Forests should be managed by the FSD	<ul style="list-style-type: none"> <li>• Could not provide any reason</li> </ul>
Forests and trees should be managed by Chiefs and Assemblymen	<ul style="list-style-type: none"> <li>• Could not provide any reason</li> </ul>
Forest and trees should be owned and managed by community members	<ul style="list-style-type: none"> <li>• Forest and trees would be properly managed since we know that the trees belong to us</li> </ul>
Forests and trees should be managed by Chainsaw operators	<ul style="list-style-type: none"> <li>• Forest and trees would be properly managed since we will know that the trees belong to us</li> </ul>

Majority (30%) of the 40 operators who proposed changes to the existing forest and tree tenure arrangements were of the view that ownership and management rights of forests and timber trees should be given to Chiefs because they are the custodians of the land and have authority to either allow or disallow people access to the forest. Some people also believed that given ownership of forests to Chiefs will grant them easy access to timber trees. Other respondents (about 28%)

asserted that the government should continue to own and manage forests and timber resources but they should have easy access to permit to harvest timber. They believed that having easy access to timber harvesting permit will grant them easy access to timber trees for their milling operations and also allow them to operate freely and avoid arrest by the FSD. Some also reported that having easy access to timber permit will help avoid conflict between TUC holders and chainsaw

operators. Some of the operators (15%) also maintained that forest and timber ownership and management rights should be given to the Assemblymen. They explained that they feel more comfortable working under the Assemblymen. They also trusted that given ownership rights to Assemblymen will secure them easy access to timber trees.

### **Implications for the Management of Forest Resources**

The results of this study indicate that forests and timber resources are critical to the livelihoods of people in Ghana. However, the way forests and timber resources are presently managed poses a threat to both rural livelihoods and the sustainability of the forest resources, which support these livelihoods. The potential of forest products to continue to support rural livelihoods in Ghana can only be realised by an increase in the stream of forest benefits to local people. Forest management systems, which are deliberately designed to sustain and develop the value of forests for people living near them, will gain support for long-term, sustainable management. This will require security of access to forest resources, local incentives to protect the forest and its timber resources, and the involvement of local communities in forest management.

### ***Secure Access to Forest and Timber Resources***

In situations where forest products have important livelihood functions, users need security of access to the resource. Indeed, meeting the needs of local forest users on a sustainable basis should be the principal objective of forest management, and this should be reflected in control and tenure arrangements (Peluso and Padoch, 1996). Insecurity of tenure often encourages short-term exploitation, such as destructive harvesting

practices that assure more certain though (over time) lower returns than might otherwise be obtained.

The value of forests and timber resources for local communities therefore needs to be promoted and developed. Indeed, indigenous rights to products in both reserve and off-reserve areas need to be recognised to enable local people take responsibility for the resource. It is important to note that sustaining rural livelihoods requires putting people at the centre of development, thereby increasing the effectiveness of support aimed at alleviating poverty and sustaining the environment. Access to assets is a critical factor in strengthening poor people's livelihoods. Indeed, tackling inequitable and insecure access to forest goods and services is one of the most important actions needed to improve forest-dependent livelihoods and enhance forest condition.

### ***Local Incentives for Protecting Forest and Timber Resources***

Current statutes in Ghana provide little or no incentives for farmers to engage in sustainable forest management or to plant and preserve timber trees on their farms. As a former chief of Kofikrom, a village in the Sefwi Wiawso District of southern Ghana reported:

"Government does not reward any farmer who conserves his forest; rather it promotes forest destruction through the National Best Farmer Award, because the underlying criterion for the award is the extent of one's cultivated farm. Why can't there be an award for farmers who are conservation-minded, or at least incorporate conservation into the criteria for the National Best Farmer Award?" (Owubah, *et al.*, 2001: 254).

This quotation suggests that there are no incentives for farmers to conserve forests in Ghana. Yet, the importance of incentives to the adoption of sustainable practices has been underscored in many studies. For example, market incentives have been shown to increase adoption of agroforestry practices in Kenya (Scherr, 1995).

Indeed, farmers have no incentive to tend or preserve timber trees on their land since they have no timber tenure rights. They have no share in the value of timber trees they maintain on their land, and have rarely been compensated adequately for damage to crops during timber logging. Many farmers therefore destroy valuable timber trees on their land or sell them to 'illegal' chainsawyers to avoid the risk of uncompensated damage. In order to encourage farmers to protect or preserve timber trees, they should benefit directly from timber trees harvested from their farms/land. Thus, the sharing of timber royalties should be reviewed to ensure that part of the benefit accrues directly to them. Unless farmers receive a percentage of timber revenue, they are unlikely to preserve timber species and will probably continue to connive with chainsaw operators to harvest timber trees or destroy valuable timber species on their land.

### ***Involvement of Local Communities in Forest Management Schemes***

In the area of co-management, the FC has, since 1993, embarked upon an initiative to work collaboratively with local communities in the management of forests. The programme was initiated out of the recognition that "all segments of society" had to benefit from the nation's forest estate. The collaborative thrust is aimed at "increasing forest values to farmers, landowners and rural communities from both on- and off-farm resources" through the management of both timber and non-timber products (Mayers and Kotey,

1996). However, there has been no single legislative or tenurial change to fuel the process of community involvement in forest management (Brown, 1999). Reform has been piecemeal and the authorities are still reluctant to relinquish control over the management of forest resources.

The challenges for community involvement in forest management in Ghana include tackling issues of forest and tree tenure, the passage of appropriate and realistic legislation to protect local communities' rights to forest resources, and placing much less restriction upon the kind of forests where community management may be applied. Forest managers have paid little attention to the fact that rural populations cannot adopt guardianship roles wholeheartedly without gaining an equivalent degree of jurisdiction over the resource. Indeed, addressing structural inequities and inequalities in the ownership and control of forests is a key challenge facing the FC. Because local communities are primary users of forest products, and create rules that significantly affect forest condition, their inclusion in forestry management schemes is essential. It is only when they are involved in forest management that they will take responsibility for the resource, including helping to control illegal timber operations.

### **CONCLUSIONS**

The study has revealed in detail some relevant issues pertaining to forest and tree tenure, access rights and their impact on 'illegal' chainsaw lumber production. The farmer plays an important role in facilitating access to timber trees by 'illegal' chainsaw operators. Even though the lack of employment opportunities and alternative livelihood activities in rural areas appear to contribute to the increasing involvement of local people in 'illegal' chainsawing, the cumbersome and bureaucratic processes, and difficulties

involved in securing harvesting permits also contribute to this illegality. Enforcement of the ban on chainsaw lumber production and sale and the restrictive forest and tree tenure arrangement in Ghana are major factors that limit the accessibility of chainsaw operators to timber trees. Even though enforcement of the ban has been observed to be largely ineffective, it is still reported as a limiting factor. It is more likely that the informal payments to FC and law enforcement agencies are the root factors bothering operators. For most operators, the right of withdrawal (the right to both access forest resources and withdraw resource units, i.e. harvest) is sufficient to encourage them to do away with 'illegal' chainsaw activities. Majority of operators would like to see a change in the way timber trees and forests are currently owned and managed in Ghana. Indeed, community resentment of the current system of timber tree tenure is a factor that facilitates the acceptance of chainsaw operators in the communities they operate.

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