Project Working Paper No. 10

A report of the pre-course survey on the effect of training in the Kenya/Japan Social Forestry Training Project

by

The training effect working group

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KENYA FORESTRY RESEARCH INSTITUTE
KEFRI

JICA

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ACKNOWLEDGEMENTS

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15-3-95

LIST OF ACRONYMS AND ABBREVIATIONS

DFO's - District forestry Officers
DFEO's - District forestry extension officers
DO-E - District Officer in-charge of environment
FD - Forestry department
FTA's - Field technical assistants
JICA - Japanese international co-operation agency
KEFRI - Kenya forestry research institute
NGO'S - Non-governmental organisations
SFTP - Social forestry training project
TSC - Training sub-committee meeting

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DISTRICT FOREST OFFICERS (DFO's)

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Introduction

Kenya/Japan Social Forestry Training Project (SFTP) started its training activities both at Muguga National training Centre (Muguga Centre) and at Kitui Regional Training Centre (Kitui Centre) in 1988 after a two-year preparation period.

Kitui training programme is geared to grass root people as well as those who directly need such training. The target groups for training courses are farmers, teachers and field technical assistants. The training programmes were aimed at imparting some technological knowledge of forestry related subjects in the arid and semi-arid lands to the target groups in order to develop self-reliant tree planting and natural resource management in the target area. This assumed that the training would improve the target groups' ability to tackle rural energy and environmental problems. The training courses are tailored to the various categories of trainees in two languages (Kiswahili and English), considering their nees in promoting social forestry and level of education. By November, 1992, a total of 870 trainees had passed through Kitui Centre.

At Muguga Centre, on the other hand, the training course were prepared mainly for high-level and middle-level government officials as well as those who occupied similar positions in various NGO's responsible for overall planing and management in promoting Social Forestry. The course contents were relatively oriented to general and theoretical subjects related to Social Forestry, comparing to the practie - oriented courses at Kitui Centre, because of the level of the trainees and their roles expected to play in their organizational structure. A total of 732 such trainees attended the courses at Muguga Centre from 1988 to 1992.

SFTP recognises the importance of evaluating the impacts of past training courses for the Project to improve future training courses. However, SFTP did not have a well laid-down methodology for monitoring the training effects when it started its operations. A short term expert, Dr. Iida, was dispatched by JICA to develop methods of evaluating the training effects. He started his work in February, 1991 and after a short survey he recommended methods of comparing results of the surveys at the pre- and post- training stages. Kitui Centre started its pre-training surveys in November, 1991 in line with Dr. Iida's recommendations and report.

Objectives

The main objective of the pre-survey is to provide baseline information for comparison with the post survey (herein and after reffered to as main survey) which is scheduled to be carried out earliest one year after a training course, hence to evaluate the training effects through the results of the two surveys. The pre-survey results are not only useful for evaluating training effects but also provides baseline information on trainees to gauge the level of forestry related knowledge, education and socio-economic strata of the trainees prior to starting those courses, and to

improve training curricula with the changing needs of the society .

Methodology

A socio-economic survey was carried out in different parts of the country to identify the status of rural population, their needs and handicaps in promoting social forestry. From the survey, a questionnaire was developed covering subjects which were identified to be necessary for evaluating the trainees' know-how, activities, participation, etc. on social forestry. Different sets of questionnaires were developed depending on the level of eduction and social status of the trainees. The trainees on the arrival were requested to fill a questionnaire with the guidance of the training officers, whenever it was necessary, especially the case of illiterate and semi-illiterate trainees.

The data shown in appendix I were analyzed by calculating the percentage response for each question. The percentages were then presented in charts, both pie and bar charts whichever was found appropriate. The details of the questionnaire are given in the appendices 2 and 3.

1.0 FARMERS

The basic consideration of the training for farmers in the evaluation of training effect lies in the fact that, farmers are the immediate promoters of social forestry. The training aimed at supporting farmers to plant trees voluntarily and independently. By training them in technical skills, we expected that the trained farmers be models or promoters of tree planting techniques in their local community. The number of farmers who responded to the questionnaire were 114. The responses were analyzed and discussed in each topic below:-

1.1 Housing style

Houses are taken as important indicators of socio-economic changes and they secure land rights to the owners. The type of a house a farmer had, could have some bearing on tree planting activities. Trees planted in the homestead improve the scenic values and are considered as part and percel of house improvement. The traditional African houses are built of mud, wood and grass but the survey revealed a modernization of housing styles that would have reflected undergone considerable evolution in the region. Houses made of bricks (burnt or unburnt) accounted for 60% with the typical traditional houses only accounting for 30% (See figure 1-1 below).

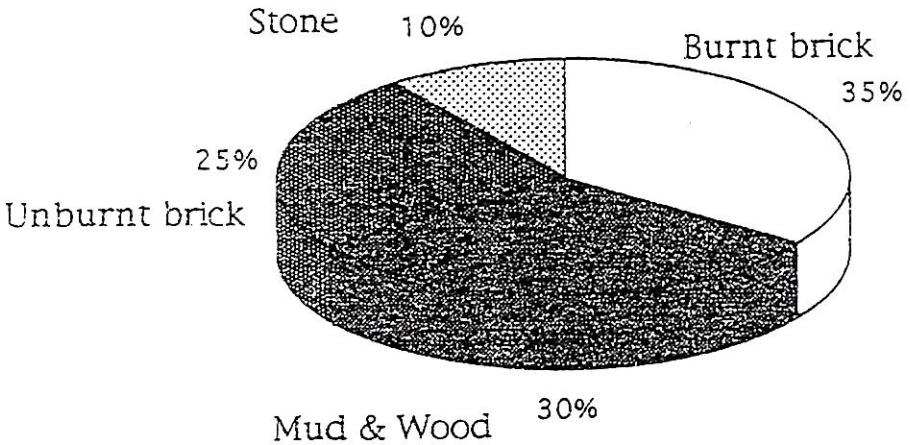


Fig. 1-1. Materials the houses are constructed from

These results indicate that farmers have invested significantly in house improvement, suggesting that tree planting for ornamental, shade and amenity may be enhanced. The results also indicate that farmers are receptive to changes.

1.2 Allocation of land for shamba and grazing

Most of the farmers have set aside a portion of their land for crop production. The highest proportion was between 4-10 acres followed by 1-3 acres accounting for 37% and 26% respectively. The highest proportion of land set aside as grazing land was 1-3 acres followed by 4-10 acres accounting for 58% and 32% respectively. The results revealed that both activities were important in the community but with crop production taking an upper hand. The fact that more land seems to be allocated for crop production, however, should not be viewed that animals are left to roam freely and that one does not need to set any special area for livestock grazing. Figure 1-2 below illustrates the proportionality of land allocated for shamba and grazing.

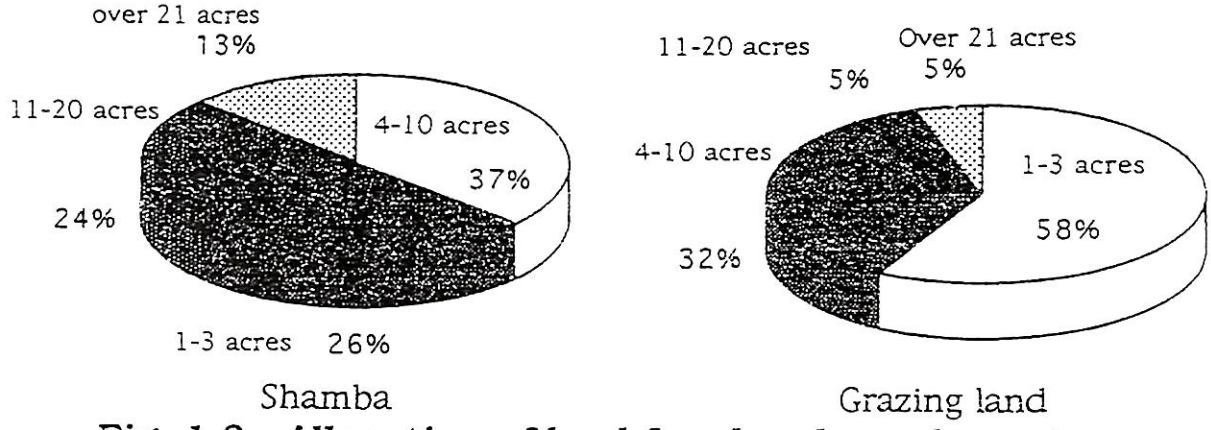


Fig. 1-2. Allocation of land for shamba and grazing

1.3 Keeping of livestock

The survey revealed that the farmers kept fewer livestock in general than we expected. The percentage of those who do not have livestock is significantly high. Cattle and goats are the main types of livestock kept. The number of cattle more than goats 70% of the respondents kept between 1-10 cattle while 60% kept the same number of goats. Sheep were least kept with 66% of farmers not keeping any. This observation is important in tree planting because livestock and especially goats are the major cause of damage to young planted seedlings and natural regeneration. High livestock population may mean that more cost was focussed on protecting seedlings in the field. Given that the participants came from a semi-arid region where livestock should be a major land use activity, less animals may also mean that the farmers are generally poor. Figure 1-3. below illustrates the results of the survey on livestock keeping.

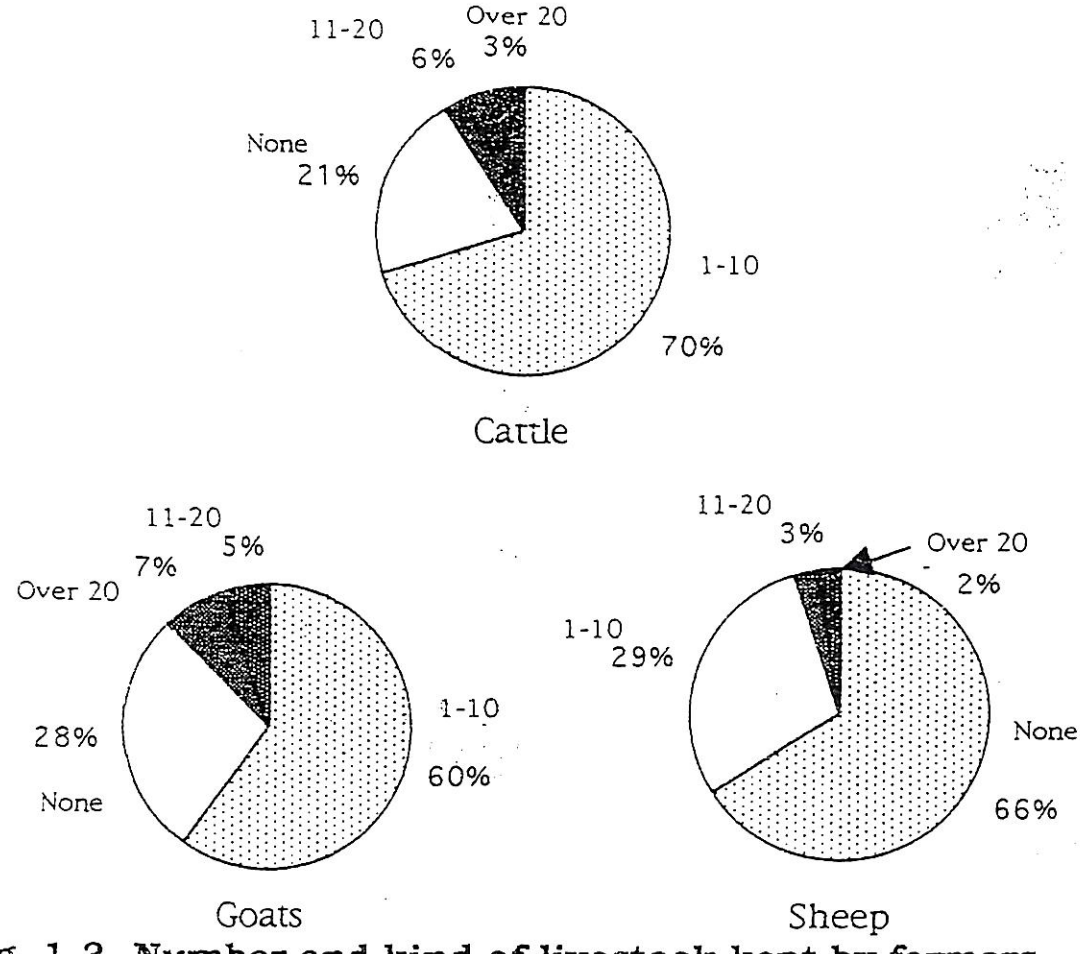


Fig. 1-3. Number and kind of livestock kept by farmers

Group membership

Most farmers or their wives belonged to a women's group within the local areas. Only 15% of the farmers and their wives were not members of any group. This may indicate that cooperative efforts already from a strong movement in the region and, therefore, training of one group member may have a strong multiplier effect among other group members and their respective locations. Figure 1-4. below illustrates membership proportions.

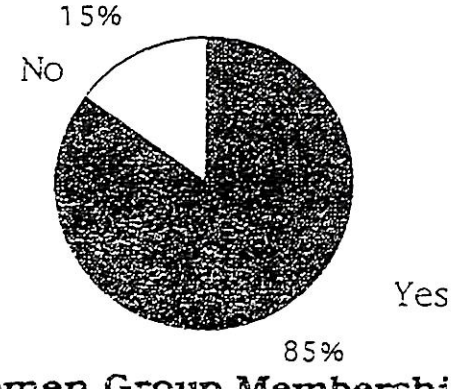
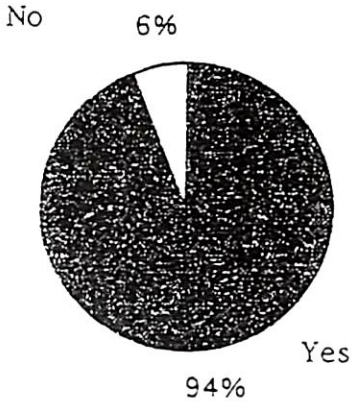


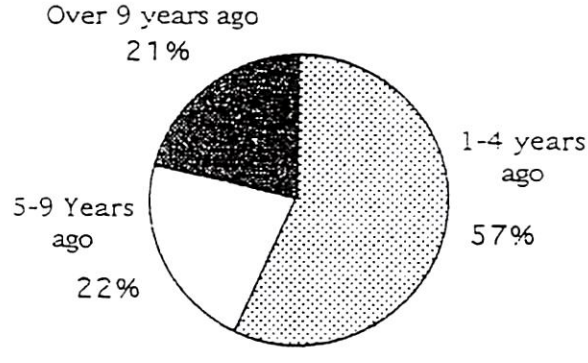
Fig. 1.4 Women Group Membership

1.5 Tree planting activities

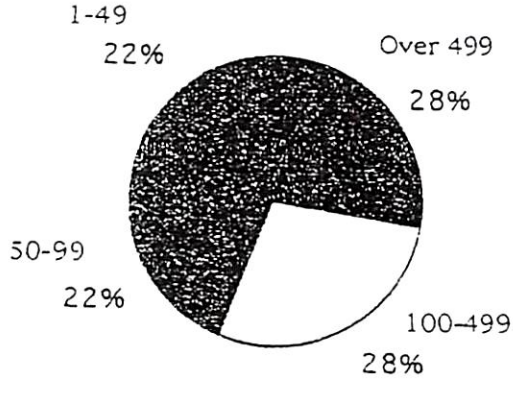
The various areas targeted in this section were; whether the farmers started planting trees, number of trees planted by him/her, number of the surviving and the purpose of planting. The responses showed that all except 6% had planted trees. 57% started planting in the last 1-4 years. This gave an indication of a strong impact of various tree planting promotional agencies which managed to create awareness on tree planting. The number of trees planted to date showed a considerable difference among the farmers. The survival count results indicated a generally poor survival. This was probably due to inadequate protection against damaging factors such as termites and adverse climatic factors.



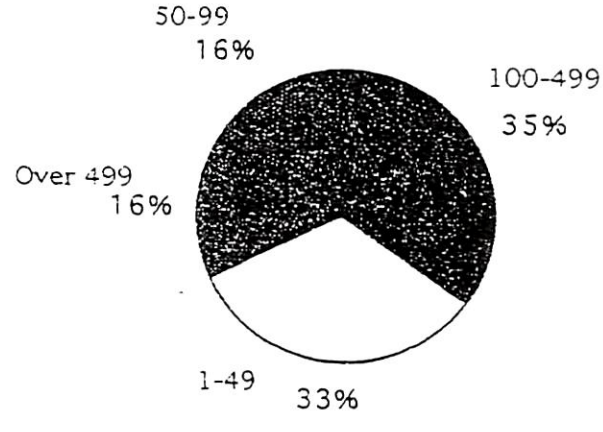
Experience of tree planting



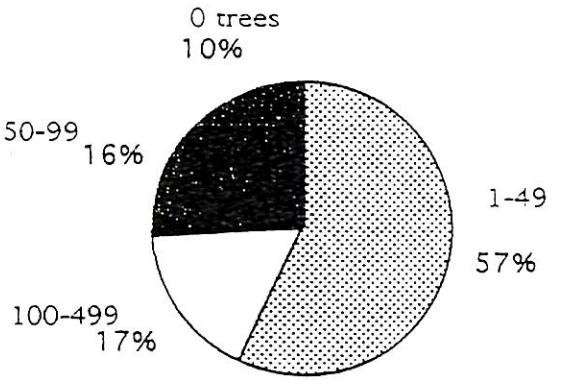
First planting year



Number of trees planted so far



Number of trees surviving



Number of seedlings planted within last 1 year

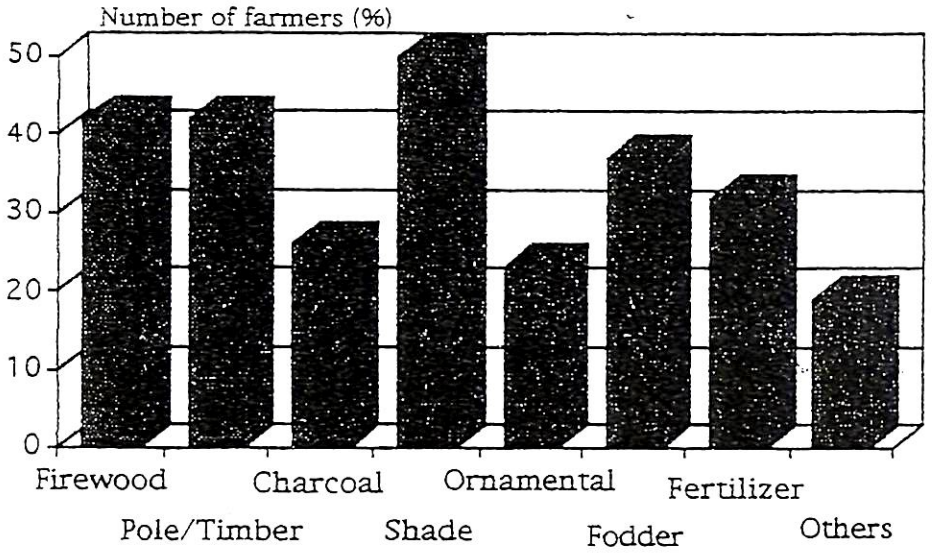
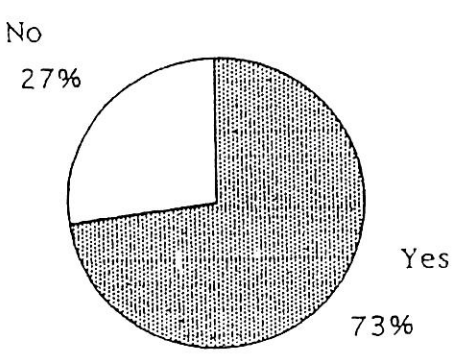


Fig. 1-5. Purpose of tree planting

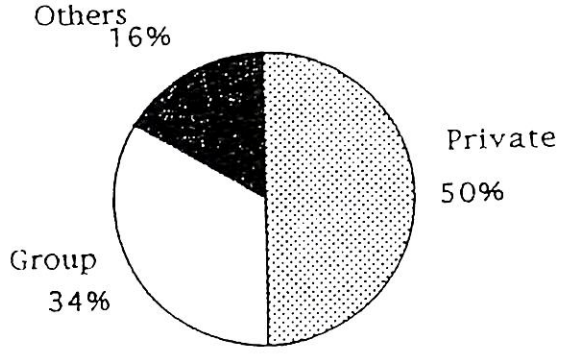
The purpose of the tree planting varied, however, firewood provision was given the highst priority followed by shade and pole/timber production. Charcoal and ornamental planting were ranked as least important. Other purposes for tree planting given were for fertilizer and fodder both of which were averagely rated. These results suggest that most people in this region still use firewood as major source of energy. The high rating of trees for shade could be understood in the light of the harsh climatical conditions which compele the people to take refuge under trees especially during the day (fig. 1-5.).

6 Nursery activities

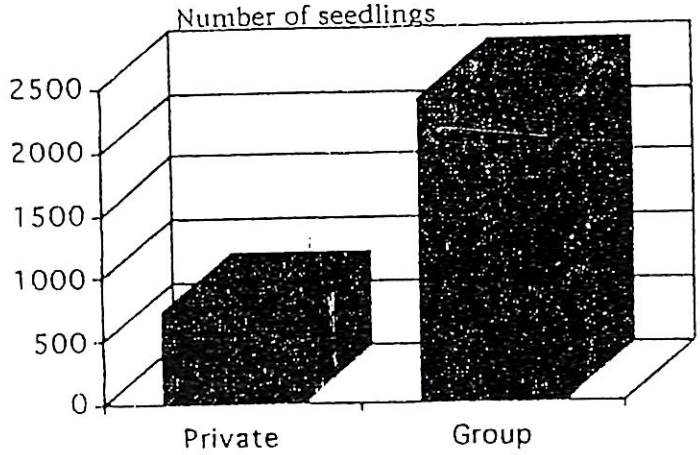
Most of the farmers raised seedlings in the nurseries which accounted for 73%. Of these, 50% were private nurseries, 34% were group nurseries with other types of nurseries accounting for 16%. A group nursery raised higher number of seedlings than a private one on average. The result further confirmed the earlier observations in section 1.4, which revealed that group work had a strong influence in this region. It is also evident from these figures that many farmers have realized the need to raise seedlings, indicating the level of awareness that have been raised on tree planting activities.



Rasing seedlings in a nursery



Type of nurseries in answers "Yes"



Average number of seedlings produced a year in each type of nursery

Fig. 1-6. Various nursery activities, and type of nurseries

1.7 Acquisition of forestry knowledge and techniques

Farmers who acquired their seed collection techniques from other sources(except of family and group) comprised 74%(See Fig. 1-7-1). The highest percentage (48%) acquired these knowledge from the Forest Department (F/D)(See Fig.1-7-2). Other ministries accounted for 31%, while the rest acquired their skills and knowledge from group and family influences. Acquisition of knowledge in nursery techniques and choice of species followed the same trend. The result suggested that the Forest Department had made significant impact in this region. However, this could be misleading given that the nomination of the farmers done by the same department that could select mainly their contact or leading farmers. This may not, therefore, give a real representation of the sourse from which the farmers gained knowledge/techniques

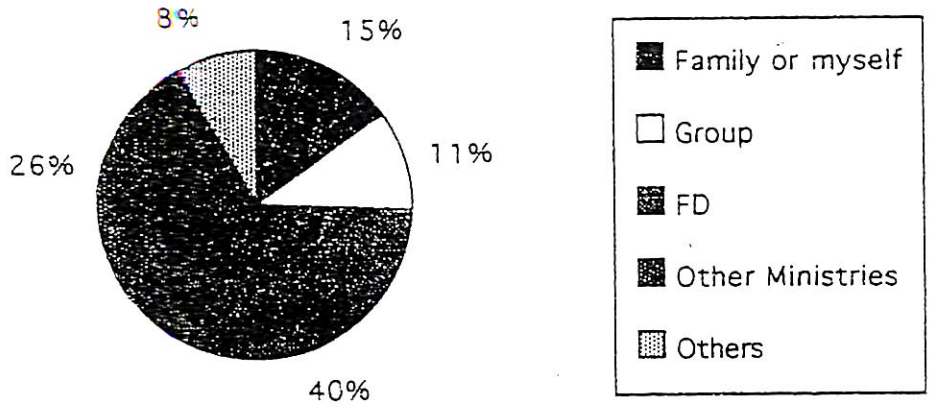


Fig.1-7-1 Acqusition sourses on seed collection

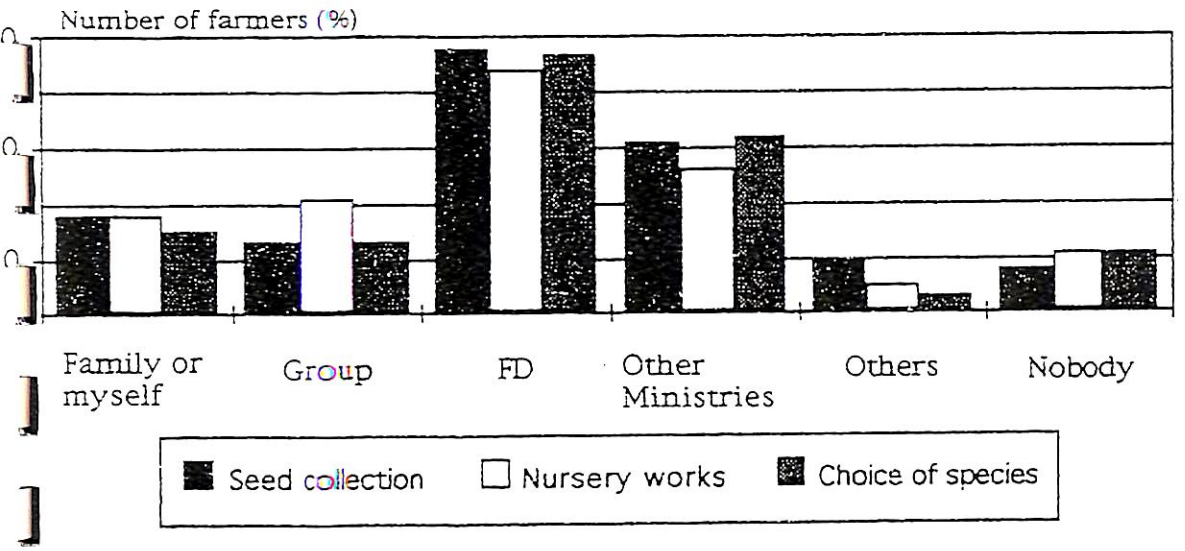


Fig. 1-7-2. Acquisition of knowledge and tree planting techniques

oblems faced in tree planting activities

Three main problems were outstanding. These were lack of tools, aterials and technical problems. Water and seed collection related problems also featured prominently. Less problems were attributed to commitments for other works and cooperation matters.

Apart from technical problems, the rest of the three major problems could not be addressed directly by the project, however, some adjustment could be made in the current curriculum to emphasize the use of locally available materials so that they would be able to meet the problem of tools and materials.

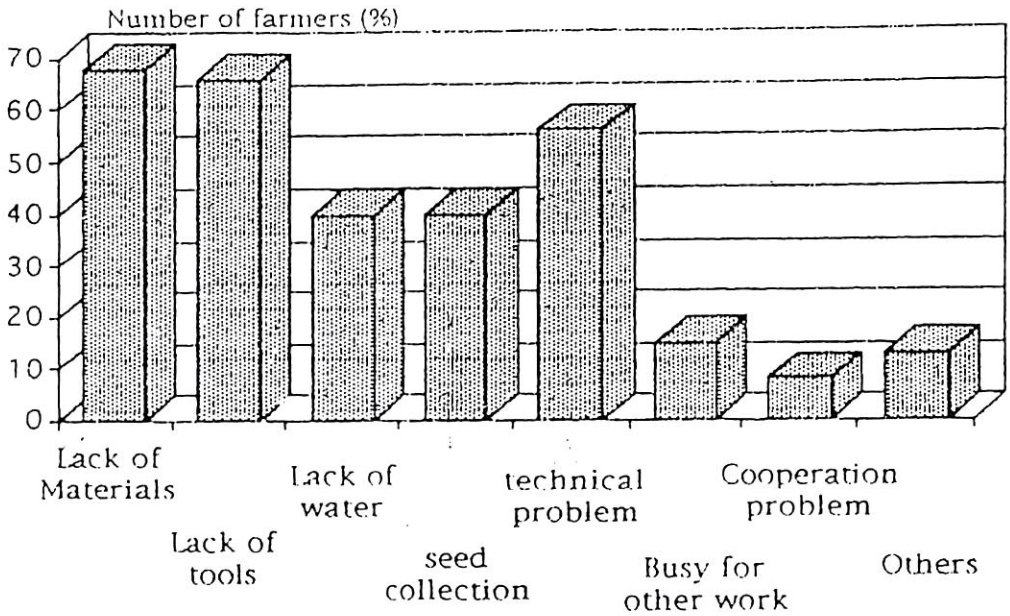


Fig. 1-8. Problems in tree planting

2.0 FIELD TECHNICAL ASSISTANTS (FTA'S)

ve field technical assistant staff courses were held, drawing a total of 121 participants who answered the questionnaires. The responses received are scussed below.

Level of formal education

All the respondents had received some formal education with 62% attaining secondary school education to form 3 and 4, and another 9% had at ast been to forms 1 and 2. The rest had primary education. This shows that l the FTAs have some basic formal education to enable them to perform their duties and to acquire new technologies for disseminating to the farmers.

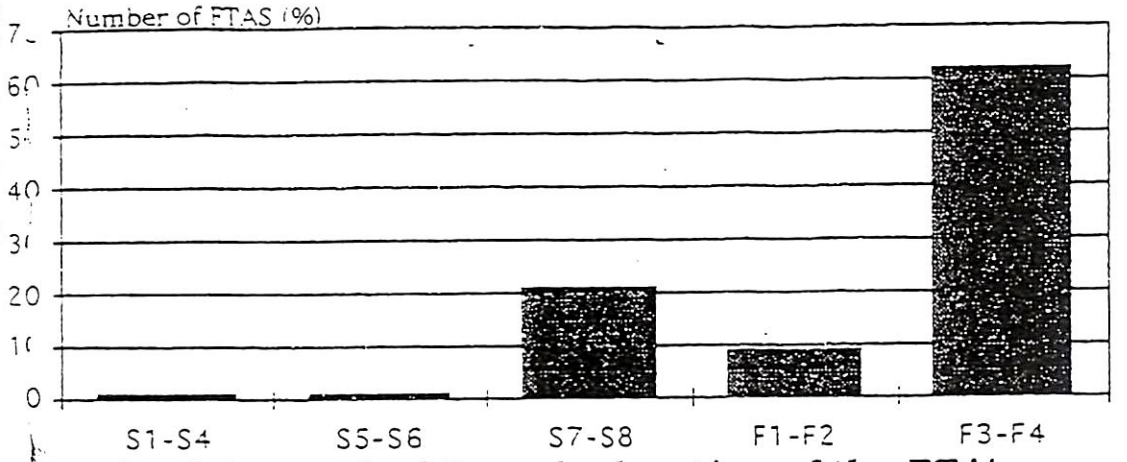
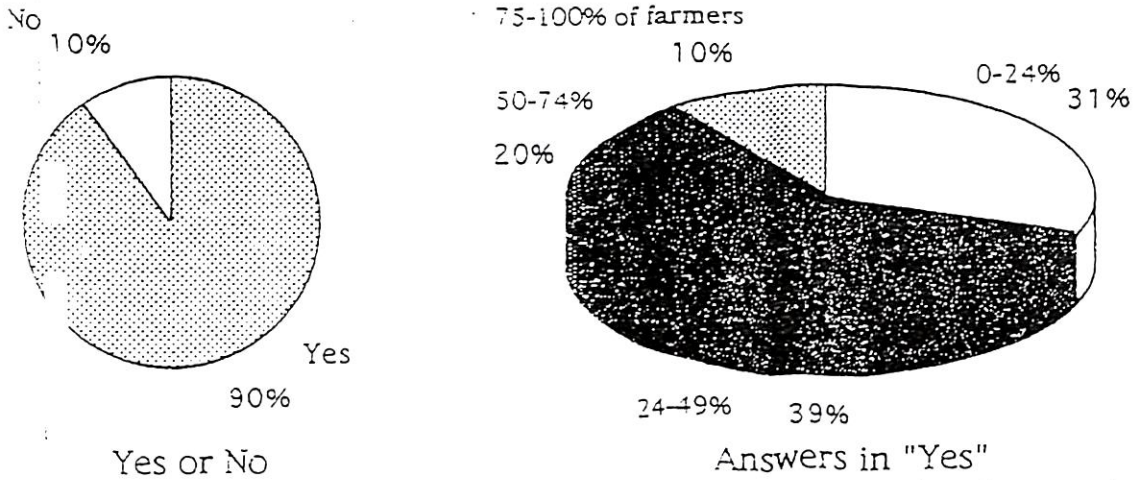


Fig. 2-1. Level of formal education of the FTA's

Proportions of farmers who planted trees in the FTA's working regions

Ninety percent of the respondents estimated that farmers who planted trees in their areas of operations. The results might indicate that the tree planting be not a major activity in most areas as 70% of the responded FTA's e timate that less than half of the farmers have joined tree planting activities in their working regions. The results are shown in figure 2-2 below.



2. Propotion of farmers who planted trees in the region

2.3 Target for promotion of tree planting activities

For the questions on targets needed for effective promotion of tree planting activities in their ares of operation, 74% of the DFO's replied that they had targets on seed collection, 69% on number of seedlings to be planted and 82% on the number of groups involved. Regarding number of seedlings, they indicated that 35,000 seedlings should be planted a year on average, while they needed involvement of 11 groups on average in the tree planting activities under their assistance.

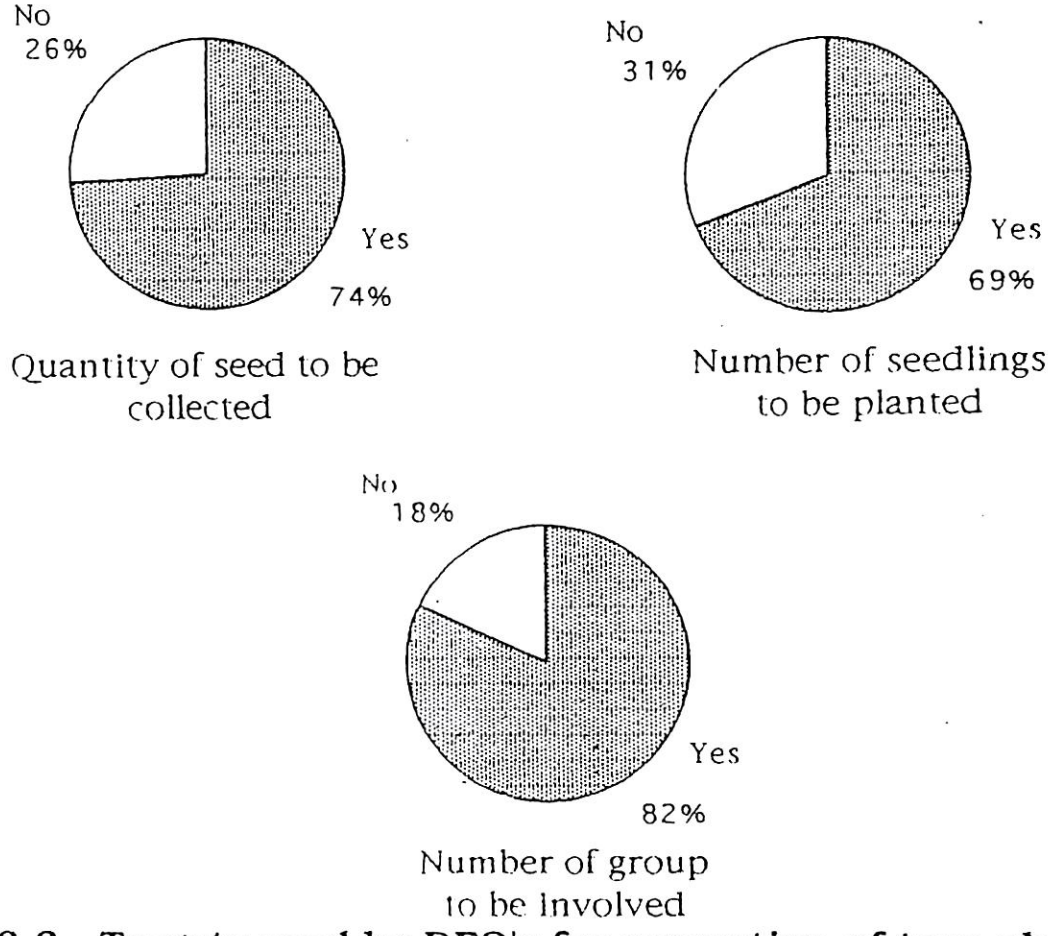


Fig. 2-3. Targets used by DFO's for promotion of tree planting activities

2.4 Annual tasks performed by FTA's

The field technical assistants perform several tasks depending on their position in the hierarchy and access to field operations. Their responses indicated that 87% out of the 78 FTA's were involved in providing some advisory services to farmers, 63% of FTA's wrote reports, 58% of held seminars and 55% were busy assisting farmers in other fields. It is worth noting that a significant amount of time is spent by the FTA's in services directly related to the farmers' concern (see figure 2.4).

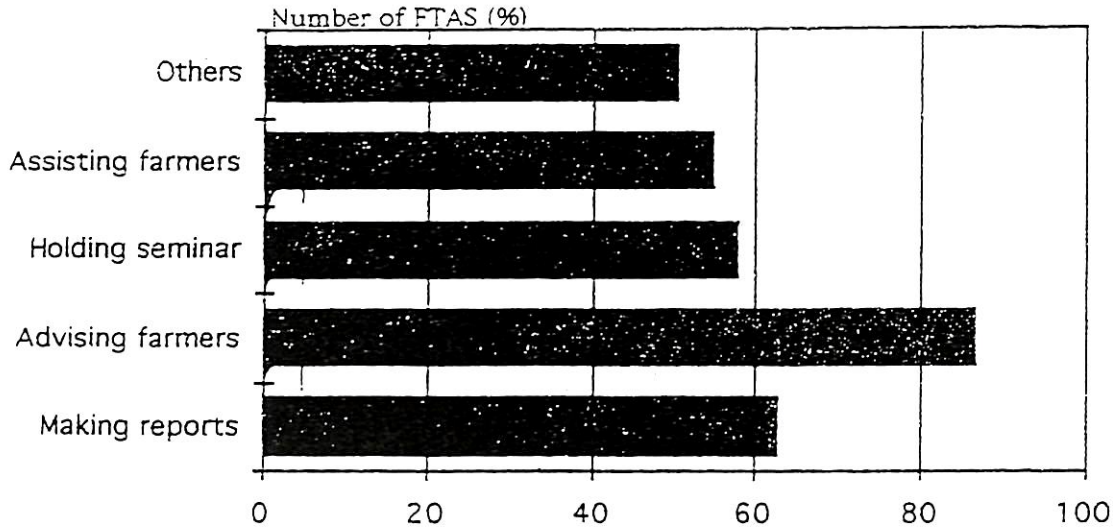


Fig. 2-4. Task performed by FTA's on an annual basis

2.5 Extension methods

Various methods were deployed by the extension officers. The use of existing farmers group was largely accepted with an avarage score of 1.4 followed by individual farmers visits which relatively scored 2.2. Use of mass media scored 2.8 and farmer to farmer approach was least popular with a mean score of 3.2. The evaluation was based on mean scores with the least numerical value referring to the best method and vice versa.

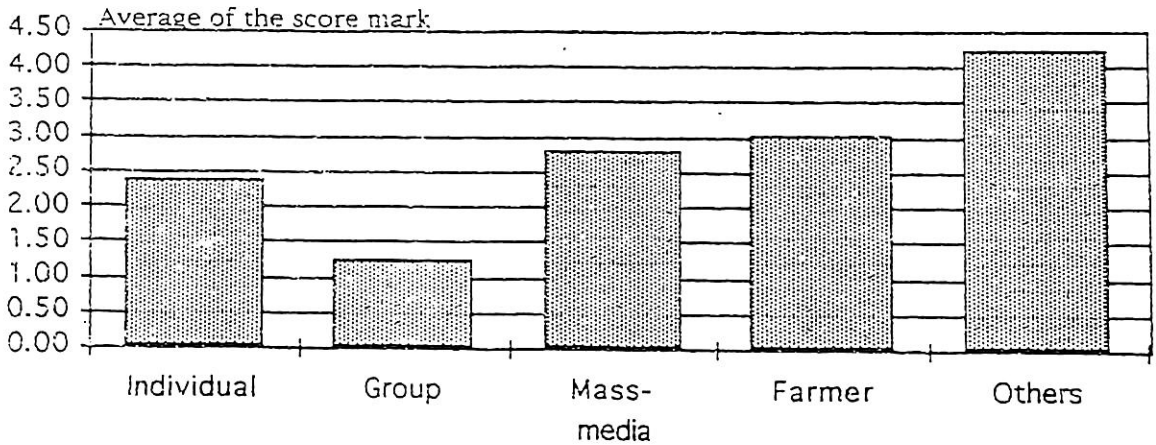


Fig.2.5. Extension methods

c.f. The FTA's in regard to the question in this section were expected to mark 1, 2, 3, 4, 5, according to importance of the extension methods they have used. The numbers indicated above are the averages of the score mark the smaller; the number is the more important the extension techniques are.

3.0 TEACHERS

The results of this survey recognized the important role of teachers and schools played in promoting tree planting activities. Schools form places of demonstration of tree planting technologies, with teachers taking the role of extension agents. The students are expected to acquire these techniques and introduce them to their families and villages.

3.1 Teaching level

Teachers who taught the upper primary classes (S5-S8) formed 44-69% of the total. Only 15% taught lower classes(S1-S4) and the fewest proportion (7-9%) taught in secondary schools(F1-F4). Most teachers interviewed came from primary schools and were more in touch with the rural population through their interaction with the local people via the pupils than the secondary school teachers. Because of this, they have more influence on the local population. Figure 3-1 illustrates the grade of classes the teachers (participants) taught in their respective schools.

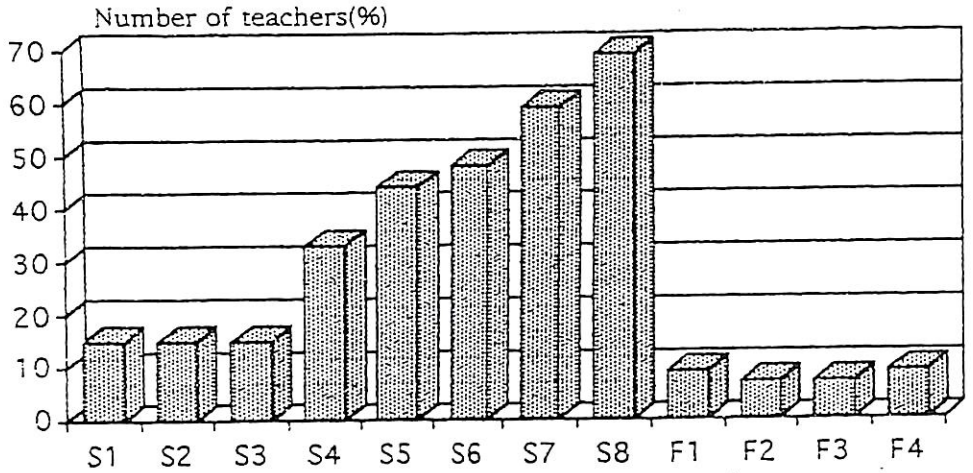


Fig. 3-1. Classes taught by the teachers

3.2 Tree planting in schools

According to the response received, many schools have planted trees in their compounds. Of these 64% have planted more than 100 seedlings. This was considered an impressive record especially if good survival could also be ensured. The project's future training may need to focus on how to improve management and selection of desired species to enhance success of planted trees in the schools because most of teachers seemed to have already grasped the importance of tree planting and put it into practice.

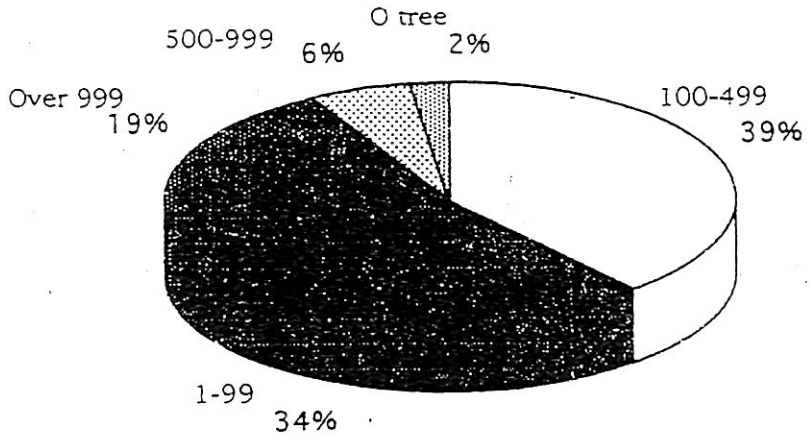


Fig.3-2. Number of trees planted in schools

3.3 Tree nurseries

The survey indicated that 59% of the schools had their nurseries. Of these, 43% had raised over 999 seedlings with another 25% raising 100 - 499 seedlings per year. This is considered a good number and the training courses in nursery practice will enable such schools that have not started to initiate and raise high quality seedlings thereby improving their overall nursery management practices.

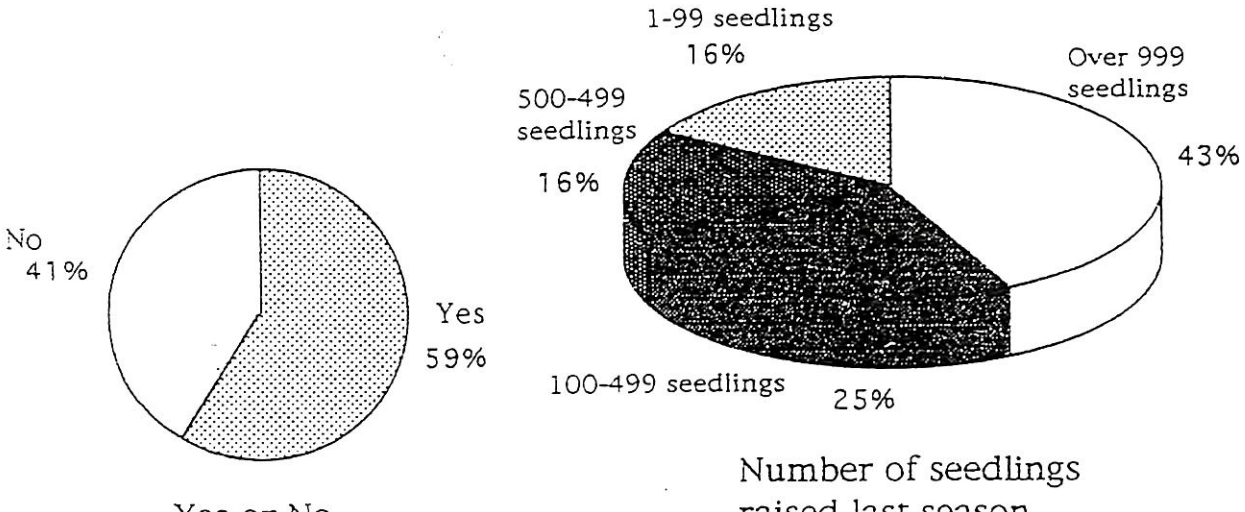


Fig. 3-3. Tree nurseries established by schools

3.4 Teaching of tree planting in schools

Sixty seven percent (67%) of the respondent indicated that they taught forestry related topics in their schools. Most of these were taught in upper classes. This is a good indication that both the teachers and students have interest in tree planting. However It should be encouraged at the early stages when people tend to be more receptive to new ideas. More teachers needed to be exposed to forestry techniques so as to enable them to impart relevant knowledge to their students/pupils.

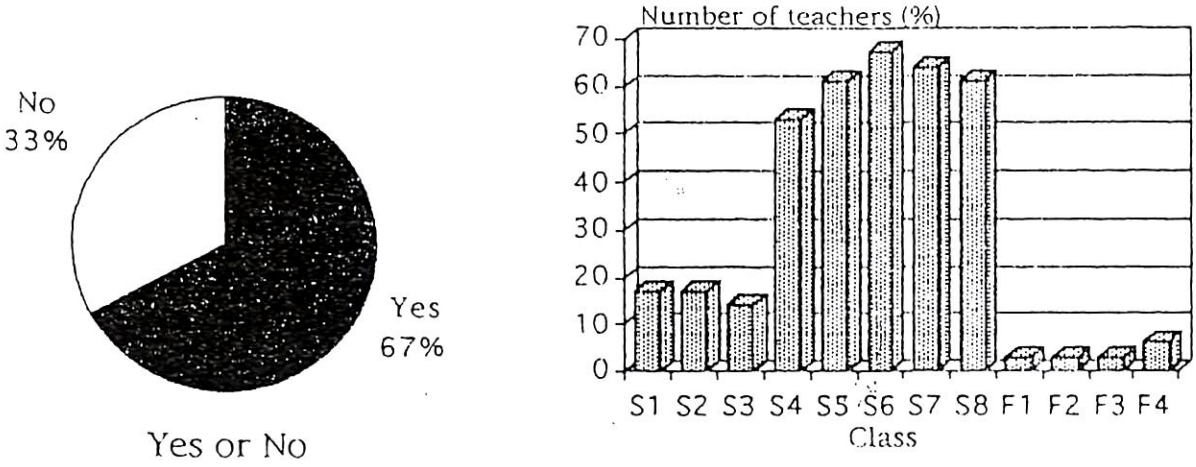


Fig. 3-4. Teaching of tree planting activities in schools

3.5 Club activities on tree planting

Fifty six percent (56%) of the respondents reported that they had tree planting clubs in their schools. Of these, 69% held their meetings twice or more per week. These figures also indicated that there is high interest in tree planting activities among the schools in the region.

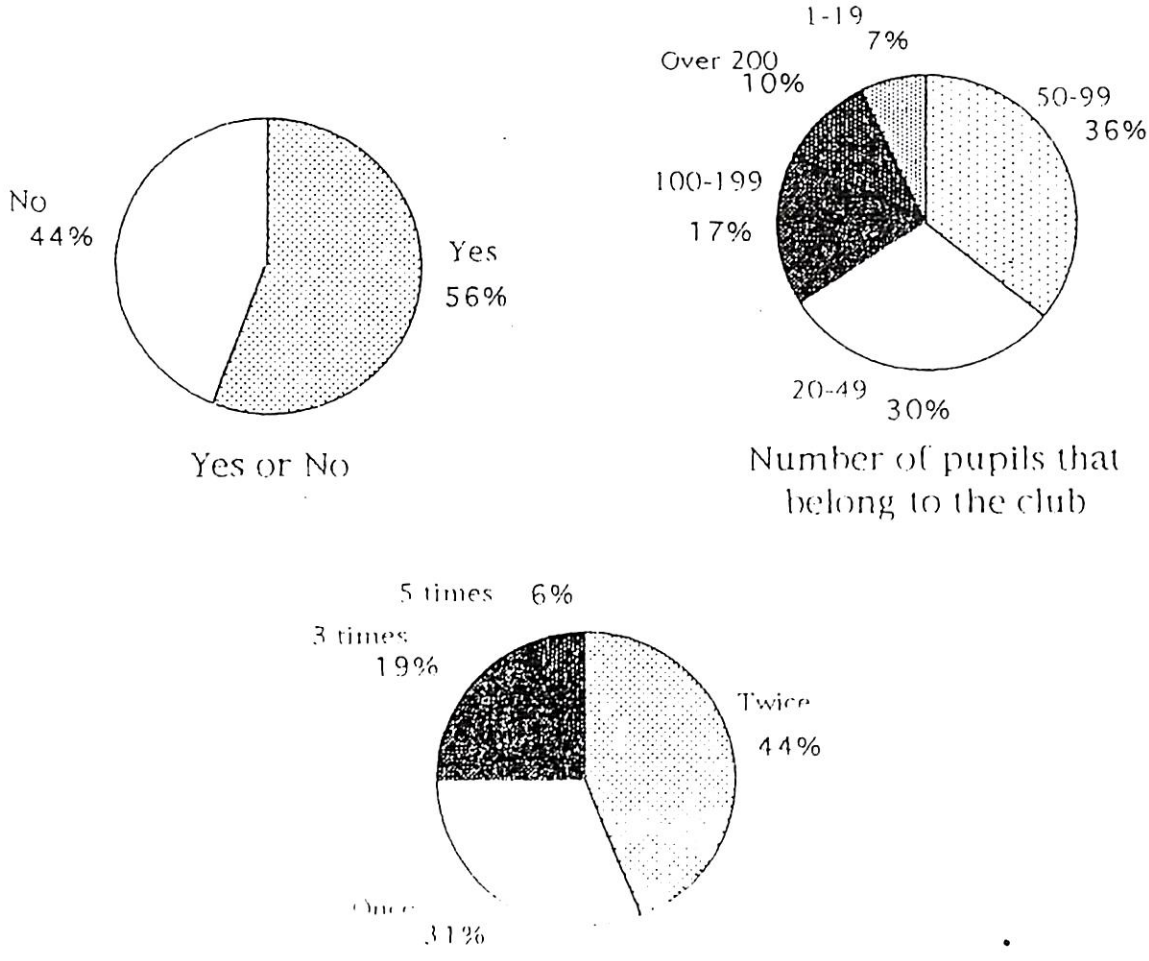


Fig. 3-5. Clubs involved in tree planting activities

3.6 **Problems faced by shools in tree planting activities**

As was observed with farmers, lack of tools and materials featured prominently as the major problems. Water, seed collection and technical problems were also factors that dettered tree planting. The curriculum deployed therefore needs to address these problems so that future courses can provide more practical and relevant knowledge/techniques to their local needs.

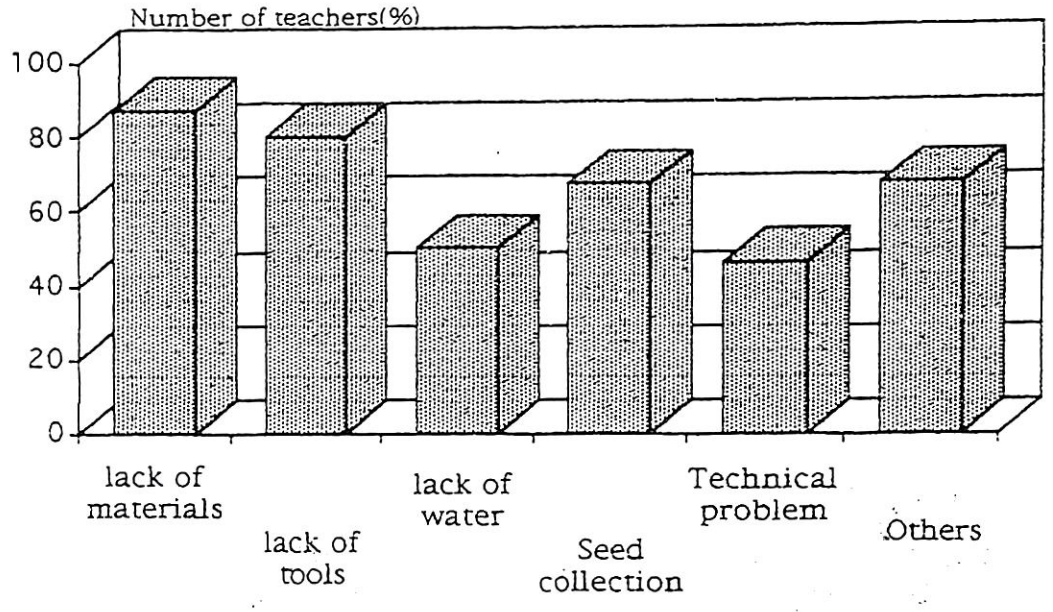


Fig. 3-6. Problems faced by schools in tree planting activities

4.0 DIVISIONAL FORESTRY EXTENSION OFFICERS

The calibre of trainee in this category included both government and non-governmental organization (NGO's) officers involved in forestry extension and other environmental activities at the divisional level. Our survey was conducted regarding the following two major activities carried out by DFEO's:

(1) areas of survey conducted

(2) type of extension work .

4.1 Survey of extension activities in respective divisions

This exercise on their survey recognized the interests of the officers in carrying out their extension work. This would enable the officers to grasp outline of the present situation, identify the problem and their needs in their respective divisions and thereby to come up with appropriate extension packages. The results were as given in figure 4.1 below.

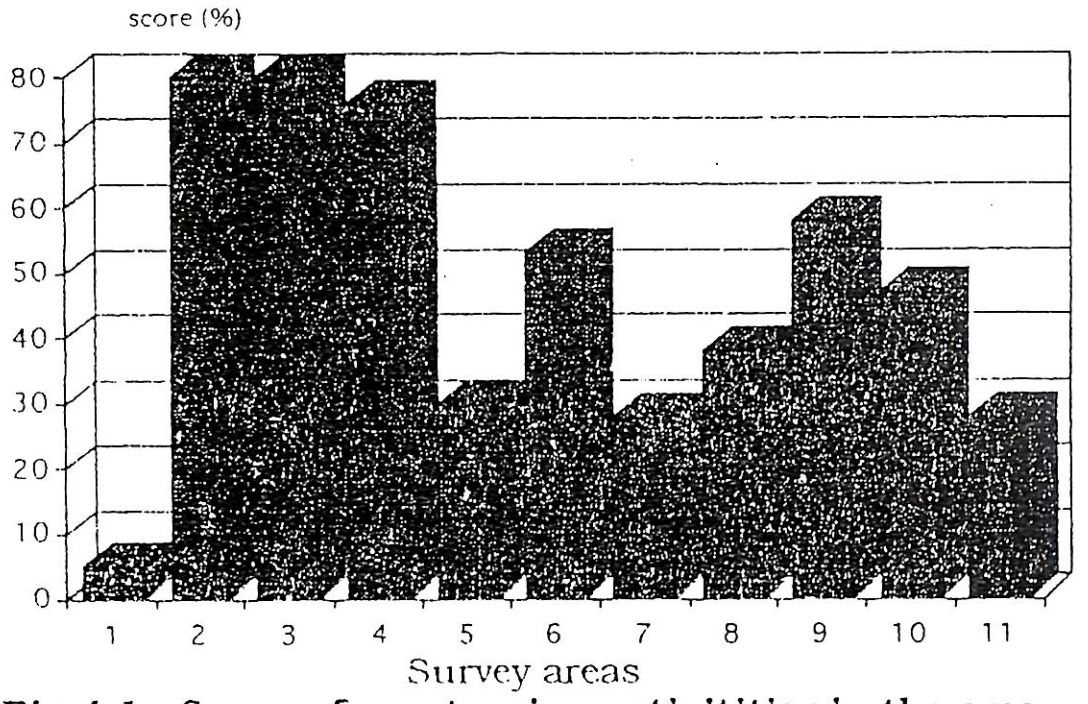


Fig 4.1. Survey for extension activitities in the area

In figure 4.1, the number 1-11 represent the major areas of survey conducted by the respondents as follows:

1. carried out no survey
2. number of tree nurseries
3. species preference
4. number of seedlings produced in a season
5. acreage planted with trees
6. number of farmers who have planted trees
7. consumption of fuelwood for household
8. forest products such as charcoal, poles, seeds
9. survival counts of planted trees

10. degree of damage by pest, diseases, livestock
11. minor forest/tree products (honey, fodder, fruits, etc.)

The result obtained showed that the officers considered survey as an important tool in their extension work. This was reflected by the fact that only 6% of the respondents had not carried out any form of survey. The most popular type of survey was on the number of tree nurseries, species preference and number of tree seedlings produced. Among the least surveyed were the survey of minor forest/tree products such as honey, fodder and fruits; consumption of fuelwood, and place and acreage of the tree plantations. The results further indicated that the extension officers were more concerned with raising seedlings and tree planting than their end products. It was observed, therefore, that the extension officers should have more concern with the end product in order to come up with the best species to be selected. The same applies to high percentages in seedling raising activities and low priority in where they were planted, which will be of importance in raising survival count.

4.2 Type of extension activity

This question was important in showing the extension priorities of the extension officers. It would help in assessing whether the priorities conform with the expectation of the farmers in social forestry. The results obtained were as given in figure 4.2 below.

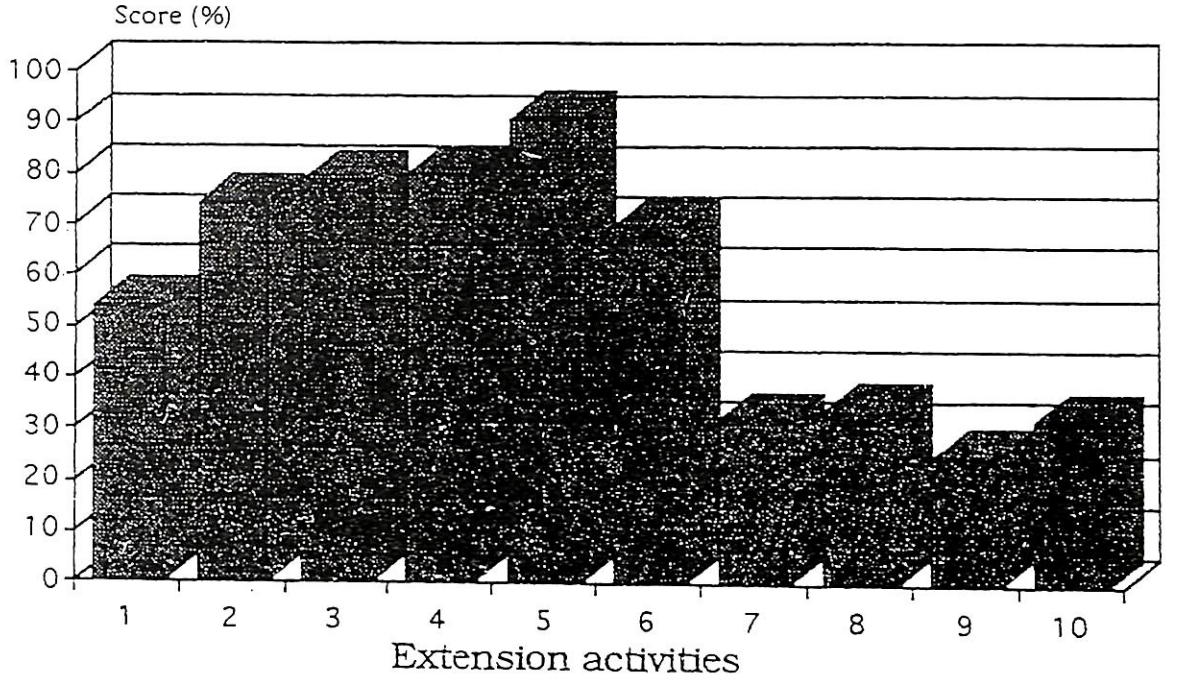


Fig. 4.2. Type of extension work

In figure 4.2, number 1 - 10 represent the type of extension activity in wich the extension officers have been involved ;

1. Made plan for extension
2. held seminar/baraza/workshop/field day etc. for tree planting.
3. recommended establishment and management of new nurseries
4. taught techniques of tree planting
5. distributed seeds and/or seedlings
6. distributed tubes or tools
7. held seminars/workshops/baraza/field day for utilization of wood
8. took measures for fuelwood provision
9. took measures for charcoal production
10. others

The highest proportion was given to extension work on distribution of seeds and/or seedlings to people as was shown by 91% of the respondents. The other two most important are teaching techniques of tree planting (80%) and establishment and management of new nurseries (70%). Notably low priority was given to extension work for fuelwood awareness extension packages (38%). On the contrary, these fuelwood-related activities should be given very high priority since the price of fossil fuel is rising and the farmers should be aware of the need to produce and conserve woodfuel by themselves. The high percentages in seedling distribution, planting and tending without equal emphasis in other areas confirmed the earlier observation that the extension officers are much concerned with planting but pay little attention to wood utilization and minor forest products.

5.0 DISTRICT FOREST OFFICERS (DFO's)

These were government and non-governmental officers directing forestry and related activities at the district level. Also included in this calibre of trainee were the District Environmental officers (DO-E), who are responsible for the coordination of all environmental oriented activities in the district. They were interviewed on four areas of concern:

(1) trend of the forest areas for the last five years,
(2) trend of the forest products in the area such as production of the fuelwood, timber and charcoal,
(3) extension subjects given high priority in the area, and
(4) kind of extension activities carried out in the area.

5.1 The trend of the forest area for the last five years

This question was important in showing whether the forest area was on the decrease or increase and the possible reasons to explain these trends. The trend provides a base on which the measure and extension strategy are to be adopted to remedy the situation. The results are shown below in figure 5-1.

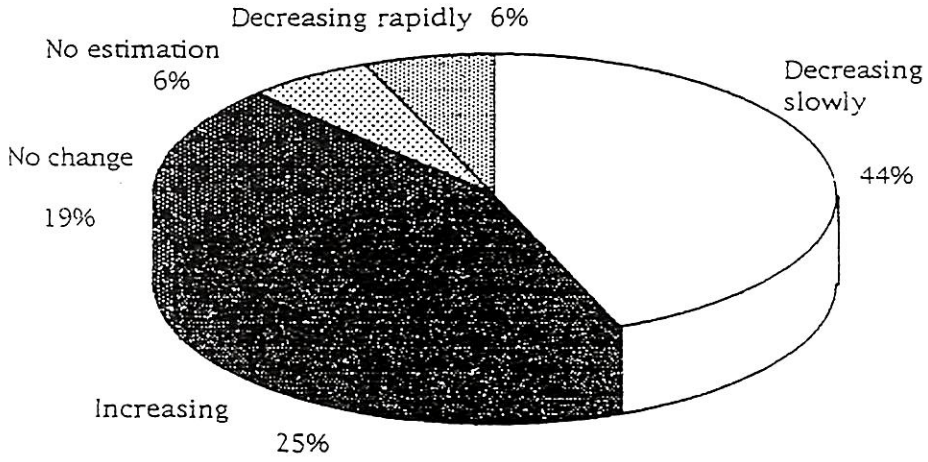


Fig. 5-1. Trend of the forest land in the last 5 years

Fifty percent (50%) of DFO's agreed that forest area was on the decline either slowly or rapidly, while only 25% disagreed. This estimated trend agrees with the earlier notion that the forest area is decreasing. The main cause of the decline in forest area was identified to be conversion of forest for other land use, mainly agricultural, illegal encroachment and settlement, while the cause of increase was given to be due to gazettement of hill tops and increased rural afforestation efforts.

5.2 Trend of forest products in the last five years

5.2.1 Production of timber

The results obtained are given in figure 5-2-1. below:

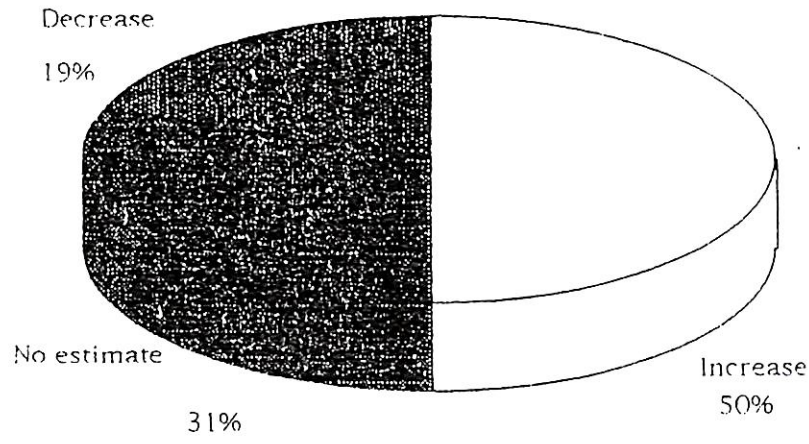


Fig. 5-2-1. Trend of timber production in the last 5 years

The results above indicate an increasing trend in timber production. This could be due to the growing demand caused by the rapid population growth and developmental needs.

5-2-2 Production of fuelwood

Fuelwood production in this context was taken to mean the amount harvested for domestic use as well as those sold in the markets. The result obtained are as given in figure 5-2-2 below:

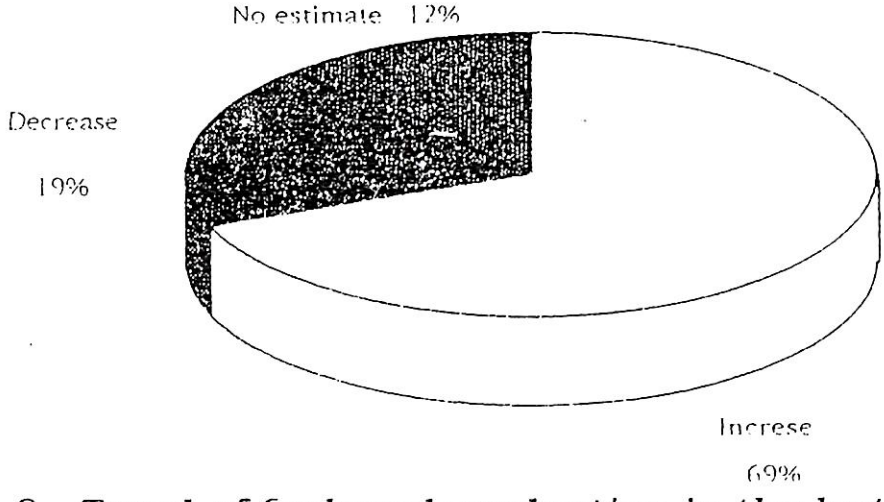


Fig.5-2-2. Trend of fuelwood production in the last 5 years

There has been a high trend in fuelwood production over the years. This is bound to increase even more because of the rising prices of fossil fuels and fast growing population. The decreasing trend of forest area observed in figure 5-1 could be due to such impacts. Thus, without a corresponding increase in tree planting areas, this may result in degradation of forest areas with adverse consequence on the environment.

5.2.3 Production of charcoal

Production here referred to the amount of charcoal burnt both for domestic use and some sold to the market. The results obtained are given in the figure 5-2-3 below:

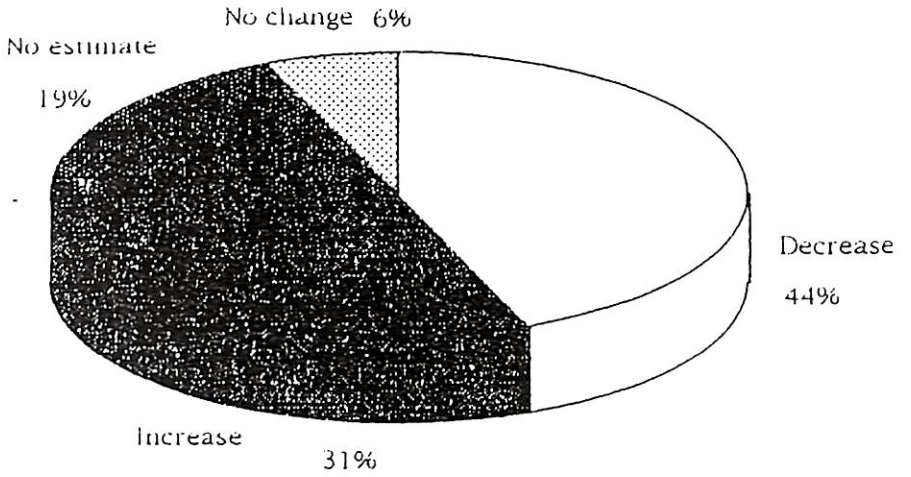


Fig. 5-2-3. Trend of charcoal production in the last 5 years

Response on charcoal production indicated almost a balanced trend between decrease and increase, even though it was slightly more on the decrease. This could be an interesting trend considering the governments restriction on charcoal burning and recent innovations on more efficient energy utilization and conservation measures.

5.3 Important extension subjects in the area

For each subject considered, respondents were asked to give a ranking based on their opinion of importance. The ranking was on an 8 points scale with 1 being the most important and 8 being least important. The implications of these are discussed in the sub-sections outlined below.

5.3.1 Tree planting and tending

Figure 5-3-1 below shows that tree planting and tending are a very important subject with 82% of the respondents ranking it between 1 and 3. This is understood in the light of most of the extension activities being geared towards tree planting as the ultimate goal.

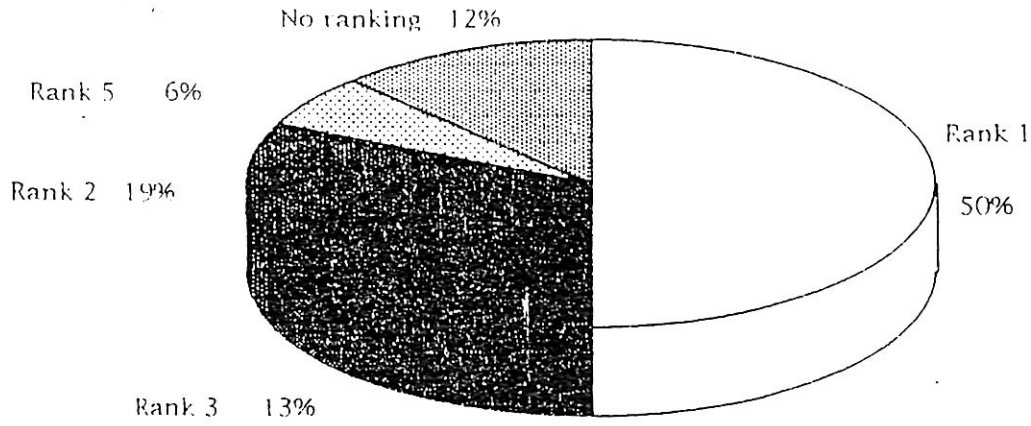


Fig. 5-3-1. Tree planting and tending

5.3.2 Prohibition of cutting natural forests

This activity received a high ranking only second to the tree planting and tending, with 38% ranking it first and a total of 69% of the respondents ranking it between 1 and 3. This could be attributed to the government's policy restricting on exploitation of natural forests. The government may have used her machinery to enforce this directive, making it mandatory for the provincial administration, local authorities and extension officers. The response obtained is as given in figure 5-3-2 below:

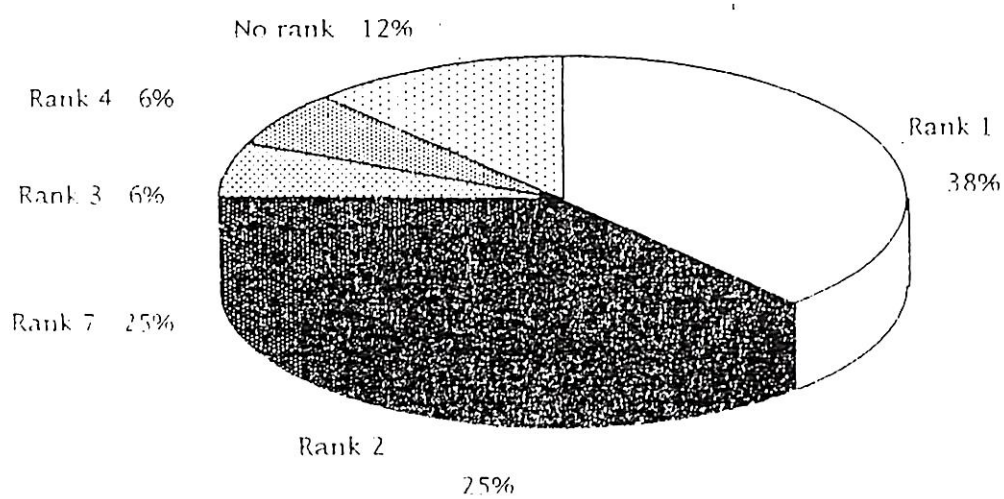
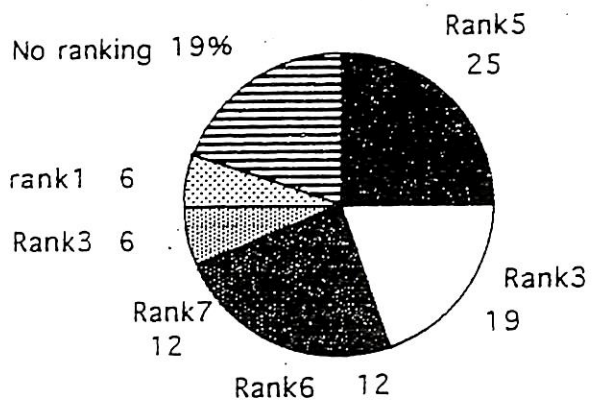


Fig. 5-3-2. Prohibition of cutting natural forest

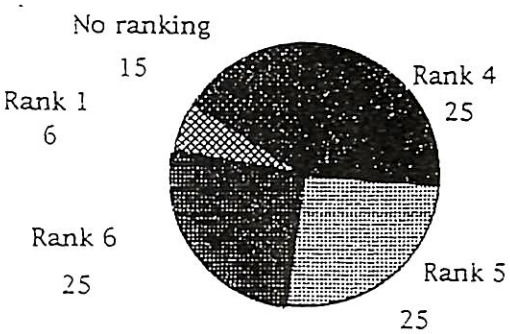
5.3.3 Supply of timber

Supply of timber received very low ranking among the respondents. This could be due to the fact that timber production activities are normally associated with government plantation forests, thus it is normally ignored as an extension subject. This should be considered, however, an important subject since the rural population needs timber for their use in construction and other utilities. This again confirmed the view that the extension officers are more

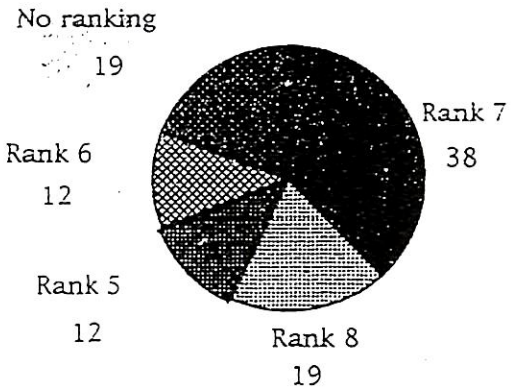
concerned with tree planting than worrying about their final products. Figure 5-3-3 below illustrates the ranking on supply of fuelwood and charcoal out of the forest.



Supply of timber



Supply of Fuelwood



Supply of charcoal

Fig. 5-3-3. Supply of timber

The two activities in figure 5-3-3 above were ranked lowest among all other specified ones. This agrees with the earlier observations that fuelwood related activities were considered least important in extension priorities. A possible explanation could be that fuelwood is still considered by and large, by most societies as a woman's activity. With other forms of fuel becoming scarce or expensive, this topic needs an urgent attention by the players involved.

5.3.4 Livestock control for forest establishment

There was no clear-cut distinction as to how the respondents valued this activity since it was ranked evenly in all the categories. This is could be explained as each district where the DFO's are working may have different status on livestock develovement as well as its damage to the forest. The tendency of the replies, however, still give some impresion that the DFO's may not have a serious concern in this issue despite its magnitude.

Most Kenyan farmers are practicing mixed farming by keeping livestock in addition to crops production. Livestock factor still plays an important role in the success of trees planted within and outside the compound especially in arid and semi-arid areas where the major population is still purely pastoralists. Livestock have been noted to play a role in environmental degradation due to overgrazing. This subject, therefore, needs to be addressed seriously.

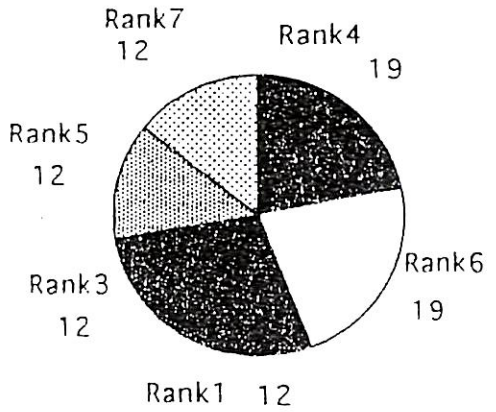


Fig. 5-3-4. Livestock control for forest

5.3.5 Assistance for private forest or tree planting

Assistant for private forestry was found favourable by most of the respondents. This could be explained due to the fact that extension forestry involves planting on private land thus most of the assistance goes to individuals and groups on their own lands whether communally or individually owned (Fig 5-3-5).

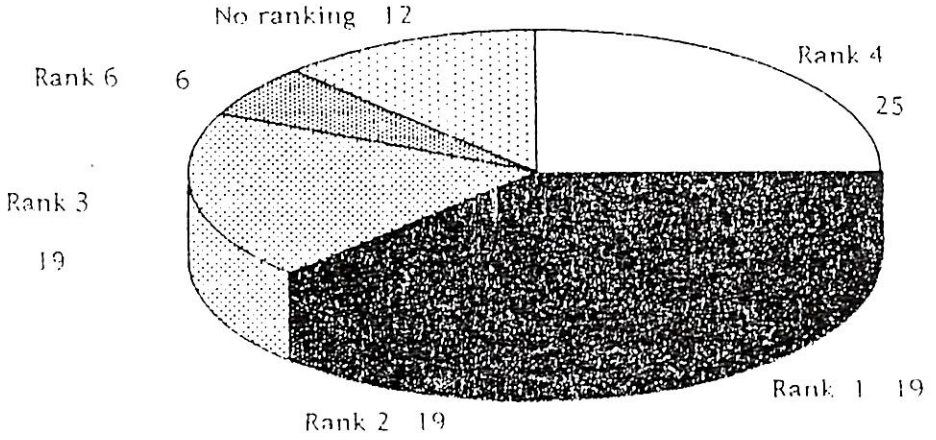


Figure. 5-3-5. Assistance for private forest

5.3.6 Other related extension work

This question was not specific but gave room for any thing else that was not covered in the previous questionnaire. Among the ones mentioned are giving advisory services to schools and institutions and soil conservation activities. Figure 5.3.6 below illustrates the results.

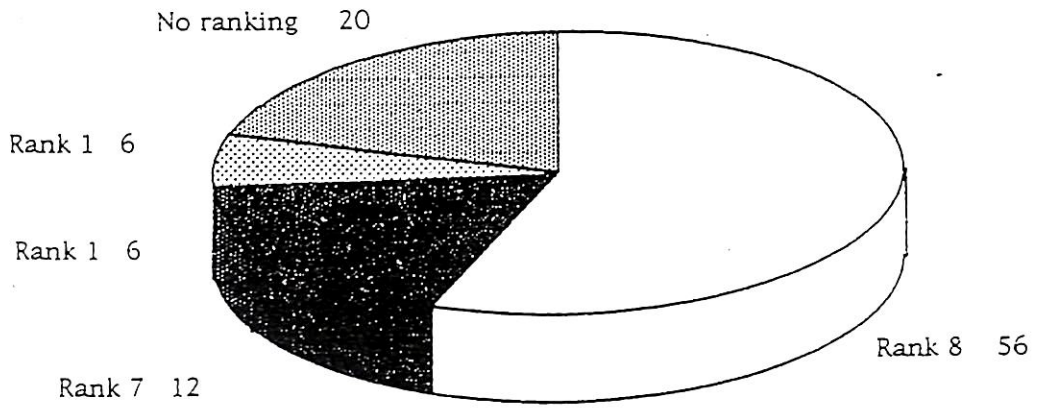


Fig. 5-3-6. Other works related to extension

5.4 Kind of extension work done

This question was sub-divided into two categories same as the section 4.0 :

5.4.1 Survey for extension in the area

All the DFO's had carried out some form of survey for extension in their respective areas. The results are shown in figure 5-4-1 below, where numbers 1 - 10 represent the topic of survey carried out of:

1. carried out no survey
2. number of tree nurseries
3. species preference
4. number of seedlings produced
5. acreage planted
6. number of farmers who planted trees
7. consumption of fuelwood for household
8. production of charcoal
9. price of charcoal
10. price of poles

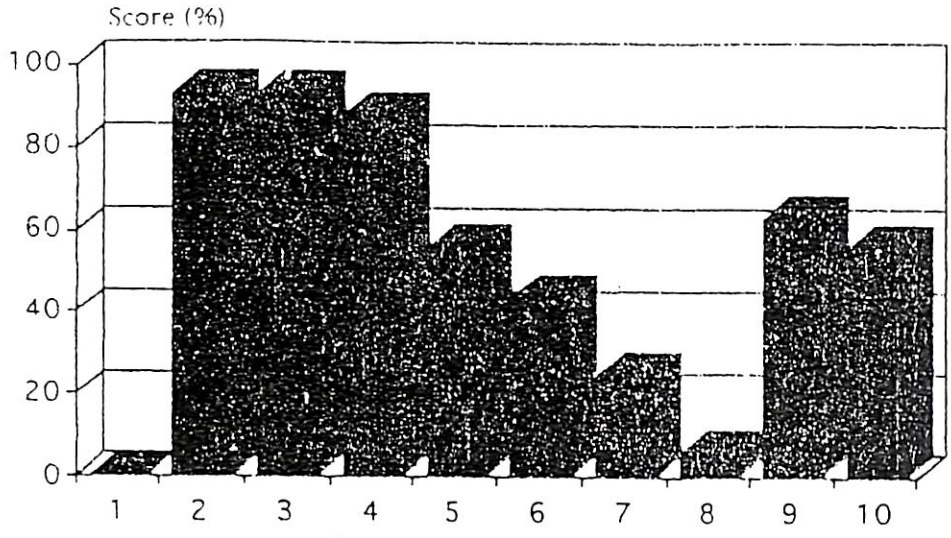


Fig. 5-4-1. Survey for extension activities

Survey of the production of charcoal came out to be the least important followed by survey of consumption of fuelwood. This could be attributed to the fact that fuelwood is normally considered a woman's affair. Most of the extension officers in forestry are bent to give it low priority. The most popular one was survey of the number of tree nurseries, species preference and number of seedlings produced. This observation agreed with the earlier observations that the extension officers were more concerned with tree planting than other activities.

5.4.2 Extension activities

All the DFO's had done some extension work or at least made plans for such. Results obtained are given in figure 5-4-2 below:

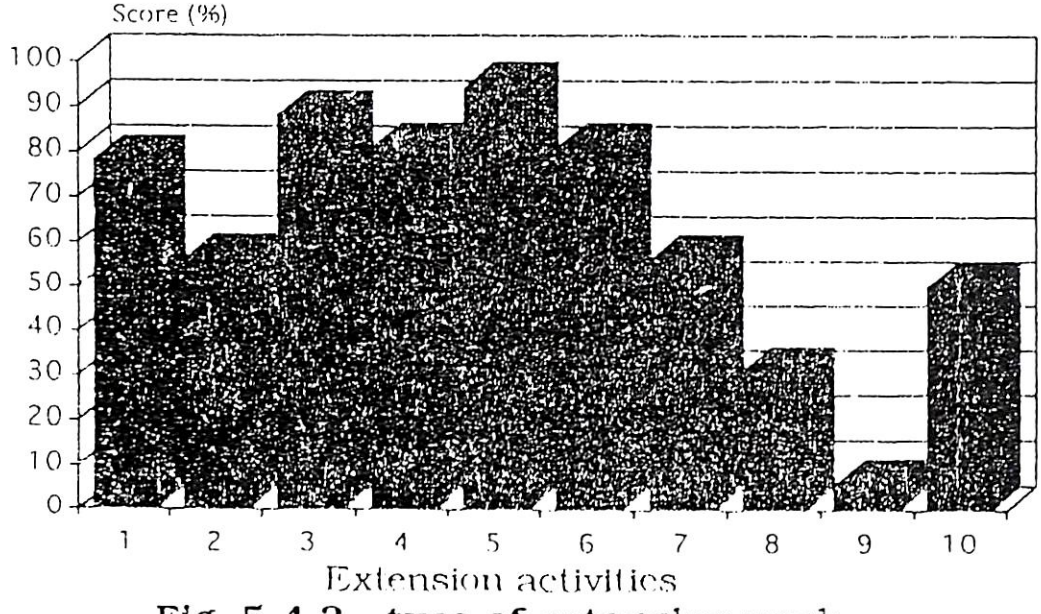


Fig. 5-4-2. type of extension work

In figure 5-4-2, the numbers 1-10 represent different extension works:

1. made a plan for extension
2. held seminar/workshop/baraza/field days etc., for tree planting
3. recommended establishment and management of new nurseries
4. taught techniques of tree planting
5. distributed tubes and/or seedlings
6. distributed tubes and/or tools
7. held seminar/workshop/baraza/field days etc. for utilization of wood products.
8. took measures for fuelwood
9. took measures for charcoal production
10. others.

The results shown above conformed with the earlier results discussed in previous sections as far as fuel related activities are concerned. Again fuelwood related extension works had the least score. The highest extension work considered important were on establishment of new nurseries, distribution of tubes and tools and holding of seminars/baraza/workshop/field days.

6.0 CONCLUSIONS

Tree planting activities carried out by the farmers and school teachers attended the courses were quite impressive, - e.g. 90% of the farmers planted trees in the last one year. These efforts should be appreciated given the fact that they had only a limited technical knowledge and financial resources. One might be able to find from these figures their basic needs and a possibility for further strengthened tree planting activities in the near future if an appropriate technical/financial assistance is provided. The survey at the same time revealed a fairly poor status on survival of the planted trees indicating lack in proper selection of species and site as well as management skills. This would be one of the areas where the related training courses are required to put more inputs in order not to discourage them from continuing the tree planting due to the unsuccessful result. It should be also noted that most of the farmers and teachers pointed out the lack of materials and tools as the most serious problem impending their planting activities.

On the other hand, results from the survey of government officials responsible for forestry extension works showed a somewhat unexpected tendency. Although they are carrying out various extension activities such as providing seeds and tools, holding seminars/meetings for farmers and giving technical advises, their major concern is quite limited to raising a number of seedlings and planting trees. They do not seem to have much interest in the subjects like utilization of trees, fuelwood, charcoal and other non-wood forest products in their extension works. This may not be surprising considering the traditional forestry education and policy, with an emphasis on a big-scale afforestation or conservation of natural forests, under which they have been trained and worked. The forestry policy in Kenya seems to be more directing towards social forestry strategy, however, it would not be very easy to change the foresters' traditional way of thinking. This tendency needs to be modified in order to promote social forestry through effective extension methods with a clear understanding of urgent needs of the farmers. It should be one of the important areas where the training courses can play an essential role.

We have to wait for the results of main survey in particular for its analysis in comparison with the pre-survey results before we get an evaluation on the training effects. The data collected from the pre-survey by itself, however, provide us with precious baseline information on the participants and the surrounding circumstances in general that enabled the course organizers to obtain their training needs and hence to improve the course curriculum. As this report is the first compilation of pre-survey results, information from other sources was not used for the analysis. It would be recommended to incorporate with data already available from other surveys that would allow a more detailed analysis on various aspects related to social forestry promotion. Furthermore it would also be useful to review the items in the questionnaires, for instance, to include more detailed questions or to cover a wider area concerned such as socio-economic issues. In reviewing it, however, methods of compilation and analysis of the data to be obtained should be also considered at the same time to avoid unnecessary expansion of areas of the survey.

		How many acres															How many head of cattle												Member of W/group	
		House materials				Shamba					Grazing land						Cattle				Goats				Sheep					
Course No	Course duration	Stone	D D	cb D	M/cw	O	1-3	4-10	11-20	21-	O	1-3	4-10	11-20	21	O	1-10	11-20	21-	O	1-10	11-20	21-	O	1-10	11-20	21-	Yes	No
22	10/6-21/6/1991		11		8	7		4	10	10	3		13	9	1	2	8	17	2		4	19	2	1	17	9	1		23	4
23	8/7-19/7/1991	3	5		2	6		7	3	2	4		9	5	1	1	2	11	1	2	5	8	1	2	9	5	1	1	13	3
28	27/1-7/2/1992	3	6		5	5		5	10	3	1		12	6	1		3	15	1		8	10		1	15	4			17	2
Total	62	6	22		15	18		16	23	15	8		36	20	3	3	13	43	4	2	17	37	3	4	41	18	2	1	53	9

	Tree planting	Tree planting (Yes)																								
		1st plant (y ago)			How many trees planted				How many surviving trees				How many seedlings planted (last season)					For what purpose have you planted these trees								
Course No	(No)	10 y	5-9y	1-4y	1-49	50-99	100-499	500-	1-49	50-99	100-499	500-	O	1-49	50-99	100-499	500-	Ornament	Shade	Firewood	Charcoal	Fodder	Fertility	Pol/timber	Others
22	4	4	3	16	10	6	2	5	11	6	4	2	3	13	3	4	O	7	11	5	5	7	6	6	4
23		6	5	5	5	4	4	8	2	3	6	5	3	9	2	2	O	1	6	7	4	5	3	8	5
28		3	4	12	3	3	10	3	6	O	11	2	O	11	4	4	O	6	14	14	7	11	11	12	3
Total	4	13	12	33	13	13	16	16	19	9	21	9	6	33	9	10		14	31	26	16	23	20	26	12

	Nursery	Nursery (YES)						From whom you got the techniques on tree planting so far except now training in Kitui Centre																Which kind of problem							
		Where Nursery			How many seedlings			Seed collection						Nursery Work					Choice of the appropriate species												
Course No	(No)	Private	Group	Other		Group	Other	Family	Group	F.D	0 Min	Others	Noted	Family	Group	F.D	0 Min	Other	Noted	Family	Group	F.D	0 Min	Other	Noted	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)
22	10	9	7	5				4	2	8	7	2	5	2	3	11	6	1	5	2	5	5	7	1	7	20	16	10	8	17	3	3	7
23	6	11		2				4	1	6	7	1		4	2	4	5	1	2	3		8	8	1		7	10	3	7	5			
28	1	11	12	2	7400	2385		3	5	16	5	3		5	8	12	5	1		4	3	16	5			15	15	12	10	13	6	2	1
Total	17	28	19	9	1180	4775		11	9	30	19	6	5	11	13	27	16	3	7	9	8	29	20	2	7	42	41	25	25	35	9	5	8

		Education Level					What proportion of farmers has planted trees in your area					How many seedlings have been planted by one farmer on the average in your area					Can you estimate the following established nurseries		
Course No	Course Duration	S1-S4	S5-S6	S7-S8	F1-F2	F3-F4	2-4	25-49	50-74	75-	Can't	-49	99	-499	500-	Can't	Women group	Schools	Church
21	13/5-24/5/91	1	O	6	2	17	11	8	3	1	6	14	3	2	1	9	153	85	31
25	9/9-20/9/91	O	O	4	4	16	4	11	5	4	2	12	8		5	1	179	95	19
29	2/12-6/3/92	O	1	6	1	15	7	8	6	2	O	13	2	1	3		90	69	14
Total	78	1	1	16	7	48	22	27	14	7	8	41	13	5	9	10	422	249	64

Course No	The number that y?		Do you have following target to promote tree planting in the area						What kind of tasks do you carry out in one year?						What kind of methods used for extension							
			Quantity of seeds			Number of seedlings		Number of groups							individual		group		mass media		farmer	
	Other	Total	Yes	Kind of seeds	No	Yes	number	no	yes	number	no	make repeat	advice	hold seminar	assist	other	sum no	no per	sum no	no per	sum no	no per	sum no	no per
21	42	311	19		10	17	7010	12	20	9 7	9	20	24	12	16	11	43	18	22	20	51	19	60	17
25	95	388	23		3	22	19190	4	24	7.4	2	19	25	19	18	18	40	19	35	25	53	18	53	18
29	93	318	16		7	15	26375	8	20	9 4	3	10	19	14	9	11	43	16	26	21	56	21	56	21
Total	230	1017	58		20	54	52575	24	64	26 5	14	49	68	45	43	40	126	53	83	66	163	58	169	56

course No	Others		How many farmers, groups, and any other bodies do you assist (re contact) now?																			
			Farmers				Women's Groups				Churches				Schools				Any other bodies			
	sum no	no persons	men	1-5	6-10	11-	men	1-5	6-10	11-	men	1-5	6-10	11-	men	1-5	6-10	11-	men	1-5	6-10	11-
21			6	2	5	15	9	9	4	4	20	4		2	6	17	2	1	20	5		
25	13	3	3	12	3	6	15	10	1		17	9			2	21	3		17	7		2
29	25	6	1	1	4	3	7	15		1	14	9			2	17	4		17	4	1	1
Total	38	9	10	15	12	24	31	34	5	5	51	22		2	10	55	9	1	54	16	1	3

			What classes do you teach								How many trees planted are there in your school					Has your school established nursery					Is forestry taught except					
																	How many seedlings last season					To which classes do(Yes)					
Course no	Duration	No of pupils	S1	S2	S3	S4	S5	S6	S7	S8	F1	F2	F3	F4	O	1-99	100-499	500-999	1000	no	-99	100-499	500-999	1000	no	S1	S2	S3	S4	S5
24	12/8-23/8/1991	389	4	2	3	8	10	11	14	16	2	2	2	2		10	12		5	9	4	2	2	19	5	5	3	4	11	12
27	18/11-29/11/1991	737	4	6	5	10	14	15	18	21	3	2	3	3	1	11	7	3	5	13	1	6	3	4	13	1	1	1	8	10
Total	51	1126	8	8	8	18	24	26	32	37	5	4	5	5	1	21	19	3	10	22	5	8	5	14	18	6	6	5	19	22

Course No	t club								Is there any club on tree planting in your school?								Which kind of problems are you facing on forestry activities					
	You teach								How many pupils belong to the club													
	S6	S7	S8	F1	F2	F3	F4		no	1-19	20-49	50-99	100-199	200						(a)	(b)	(c)	(d)	(e)	(f)
24	11	12	13	1	1	1	1		13	2	5	4	3		1	2	3	4	5	22	15	12	17	16	19
27	13	11	9				1		11		4	7	2	3	5	7	3		1	25	28	15	19	9	17
Total	24	23	22	1	1	1	2		24	2	9	11	5	3	5	7	3		1	47	43	27	36	25	36

Pre-survey Form for Farmers' Course

Date:_____

Name:_____ Age: _____

Course Duration: from _____ to _____

Where is your home : District: _____

Division: _____

Location: _____

1. What kind of materials is your house made of ?

(a) Stone (b) Burnt bricks (c) Unburnt bricks (d) Mud & Wood

2. How many acres of land do you have ?

(1) Shamba: (a) 0 acre (b) 1-3 (c) 4-10 (d) 11-20 (e) Over 21

(2) Grazing land: (a) 0 acre (b) 1-3 (c) 4-10 (d) 11-20 (e) Over 21

3. How many head of animals do you have ?

(1) Cattle: (a) 0 (b) 1-10 (c) 11-20 (d) Over 21 head

(2) Goats: (a) 0 (b) 1-10 (c) 11-20 (d) Over 21 head

(3) Sheep: (a) 0 (b) 1-10 (c) 11-20 (d) Over 21 head

4. Are you or is your wife a member of any women's group ?

(a) Yes (b) No

5. Have you ever planted trees except fruits ?

(a) Yes (b) No

(If replied "Yes")

(1) When did you plant your trees first ?

(a) 10 or more years ago (b) 5-9 years ago (c) 1-4 years ago

(2) So far how many trees have you planted ?

(a) 1-49 Trees (b) 50-99 (c) 100-499 (d) 500 or more

(3) So far how many trees are surviving ?

(a) 1-49 Trees (b) 50-99 (c) 100-499 (d) 500 or more

(4) How many seedlings did you plant within last one year ?

(a) 0 (b) 1-49 Seedlings (c) 50-99 (d) 100-499 (e) 500 or more

(5) For what purpose have you planted these trees?

(a) Ornamental (b) Shade (c) Firewood (d) Charcoal Making (e) Fodder

(f) Fertilizer (g) Pole/Timber for construction (h) The other purposes

6. Are you raising any seedlings in a nursery ?

(a) Yes (b) No

(If replied "Yes")

(1) Whose Nursery is it ?

(a) Private Nursery / individual

(b) Group Nursery

(c) Others (Specify):_____

(2) How many seedlings do you have in such a nursery ?

(a) Private Nursery / Individual _____

(b) Group Nursery _____

(c) Others _____

7. From whom have you got the techniques on tree planting so far except now training in Kitui Centre ?

(1) Seed collection

(a) From you family or yourself (b) From a group

(c) From the Forest Department (officers,workers)

(d) From other Ministries (Agriculture, etc)

(e) Any other source (f) I have not known them so far

(2) Nursery works

(a) From your family or yourself (b) From a group

(c) From the Forest Department (officers, workers)

(d) From other ministries (Agriculture, etc)

(e) Any other source (f) I have not known them so far

(3) Choice of the appropriate species

(a) From your family or yourself (b) From a group

(c) From the forest Department (Officers, workers)

(d) From other ministries (Agriculture, etc)

(e) Any other source (f) I have known them so far.

8. Which kind of problems are you facing on forestry activities ?

(a) Luck of materials, specify them _____

(b) Luck of tools, specify them _____

(c) Luck of water

(d) It is difficult to collect seeds.

(e) Technical matters, specify them _____

(f) We are too busy with other works.

(g) Luck of cooperation among members.

(h) Others (specify):_____

9. What are your expectations for enhancing tree planting activities in the future ?

_____

Pre-survey Form for Field technical Assistant Staff Course

Date:_____

Name:_____ Age:_____

Course Duration: from_____ to_____

Where is your home : District: _____

Division: _____

Location: _____

Name of your Office : _____

Educational level : (a) S1-S4 (b) S5-S6 (c) S7-S8 (d) F1-F2 (e) F3-F4

1. What propotion of farmers have planted trees in your area?

(a) less than 25% (b) 25-49% (c) 50-74% (d) 75% or more (e) can't estimate

2. How many seedlings have been planted by one farmer on the average in your area ?

(a) less than 50 trees (b) 50-99 trees (c) 100-499 trees (d) 500 trees or more

(e) can't estimate

3. Can you estimate the of groups, schools or any other bodies that have established tree nurseries in your area ?

(a) women's groups : _____ (b) schools : _____

(c) Churches : _____ (d) any other bodies : _____

(e) total : _____

4. Do you have following targets to promote tree planting and tending in your area ?

(1) Quantity of seeds that should be collected

(a) Yes : Which kind of seeds ( )

(b) No

(2) Number of seedlings that should be planted

(a) Yes : How many seedlings ( )

(b) No

(1) Number of groups that should be assisted

(a) Yes : How many groups ( )

(b) No

5. What kind of tasks do you carry out in one year ?

(a) make reports to the office

(b) advice farmers, groups and/or other bodies on various techniques

(c) hoid seminars on tree planting at the chief's barazas

(d) assist farmers or the other bodies to get some tools, tubes, seeds, seedlings and/or something else

(e) do the other works : _____

6. Please mark 1, 2, 3, ... in ( ) , according to the importance in methods that you have used in your extension work ?

( )(a) individual method

( )(b) group method

( )(c) mass media method (e.g. seminar at the chief's baraza)

( )(d) farmer to farmer method

( )(e) the other method : _____

7. How many farmers, groups, or any other bodies do you assist (or contact) presently ?

(1)	farmers :	(a) none	(b) 1-5	(c) 6-10	(d) more than 10
(2)	women's groups :	(a) none	(b) 1-5	(c) 6-10	(d) more than 10
(3)	self help groups :	(a) none	(b) 1-5	(c) 6-10	(d) more than 10
(4)	church :	(a) none	(b) 1-5	(c) 6-10	(d) more than 10
(1)	schools :	(a) none	(b) 1-5	(c) 6-10	(d) more than 10
(1)	any other bodies :	(a) none	(b) 1-5	(c) 6-10	(d) more than 10

8. Which kind of problems are you facing on forestry activities ?

_____

Pre-survey Form for Teachers'Course

Date:_____

Name:_____ Age:_____

Course Duration: from_____ to_____

Where is your school : District: _____

Division: _____

Location: _____

Name of your school: _____

1. Number of pupils in your school ?

   about _____pupils

2. What classes do you teach ?

   S1, S2, S3, S4, S5, S6, S7, S8, F1, F2, F3, F4

3. What kind of subjects do you teach ?

   _____

4. How many trees planted are there in your school ?

   (a) 0 (b) 1-99 (c) 100-499 (d) 500-999 (e) 1000 or more

5. Has your school established any tree nursery ?

   (a) yes (b) no

(if replied "yes")

   How many seedlings did your school raise within last one year ?

   (a) less than 100 (b) 100-499 (c) 500-999 (d) 1000 or more

6. Are techniques and knoeledge on forestry taught in your school except teaching them in club activity?

   (a) yes (b) no

(if replied "yes")

   To which classes are they taught ?

   S1, S2, S3, S4, S5, S6, S7, S8, F1, F2, F3, F4

7. Is there any club on tree planting in your school ?

   (a) yes (b) no

(if replied "yes")

   How many pupils belong to the club ?

   (a) under 20 (b) 20-49 (c) 50-99 (d) 100-199 (e) 200 or more

How many times is given to the club activities per week ?

(a) 1 (b) 2 (c) 3 (d) 4 (e) 5

8. Which kind of problems are you facing on forestry activities ?

(a) Luck of materials, specify them .....

(b) Luck of tools, specify them .....

(c) Luck of water

(d) It is difficult to collect seeds

(e) Technical matters, specify them .....

(f) Others (specify) : .....

9. What are your expectation for enhancing tree planting activities in the furture ?

.....

.....

Pre-survey Form for DFO and Assist DFO

Date:_____

Name:_____Age:_____

Course Duration: from_____to_____

Name of your office : _____

1. Year you got job at Department of Forestry : _____

2. Year which you were nominated for DFO : _____

3. Kinds of jobs you have done at Dpt. of Foresty

(a) Assist. DFO (b) DFO (c) The other : _____

4. Are forest land decreasing in the last 5 years in your area ?

(a) decreased rapidly (b) decreased slowly (c) no change (d) be increasing

(e) don't estimate

5. Are forest products increasing in the last 5 years in your area ?

(1) Production of timber

(a) increased (b) no change (c) decreased (d) don't estimate

(2) Production of fuelwood

(a) increased (b) no change (c) decreased (d) don't estimate

(3) Production of charcoal

(a) increased (b) no change (c) decreased (d) don't estimate

6. What kinds of subjects are important in your area ? Please make number in the brackets followed by importance.

( )(a) tree planting

( )(b) prohibition of cutting natural forest

( )(c) supply of timber

( )(d) supply of fuelwood

( )(e) supply of chacoal

( )(f) livestock control for forest

( )(g) assistance for private forest or tree planting

( )(h) the other works: _____

7. What kind of extension works have you carried out ?

(1) Survey for extension in your area.

(a) haven't carried out

(b) survey of number of tree nursery

(c) survey of number of tree seedlings produced in a season

(d) survey of acreage where planted trees

(e) survey of number how many farmers have planted trees

(f) survey of consumption of fuelwood for household

(g) survey of production of charcoal

(h) survey of price of charcoal

(i) survey of price of pole

(2) Extension works

(a) make the plan for extension

(b) held seminar for tree planting

(c) taught techniques of tree planting

(d) distribution of seeds and / or seedlings to someone

(e) distribution of tubes and / or tools to someone

(f) held seminar for utilization of wood

(g) took the measures for fuelwood

(h) took the measures for chacoal production

(i) carried out the other works : _____

Pre-survey Form for DFEO

Date:_____

Name:_____ Age:_____

Course Duration: from_____ to_____

Name of your office : _____

1. Year you got job at Department of Forestry : _____

2. Year which you started extension work at Dpt. of Forestry: _____

3. Kinds of jobs you have done at Dpt. of Foresty

   (a) DFEO (b) The other : _____

4. What kind of extension works have you carried out ?

   (1) Survey for extension in your area.

   (a) haven't carried out

   (b) survey of number of tree nursery

   (c) survey of number of tree seedlings produced in a season

   (d) survey of acreage where planted trees

   (e) survey of number how many farmers have planted trees

   (f) survey of consumption of fuelwood for household

   (g) survey of production of charcoal

   (h) survey of price of charcoal

   (i) survey of price of pole

   (2) Extension works

   (a) make the plan for extension

   (b) held seminar for tree planting

   (c) taught techniques of tree planting

   (d) distribution of seeds and/or seedlings to someone

   (e) distribution of tubes and/or tools to someone

   (f) held seminar for utilization of wood

   (g) took the measures for fuelwood

   (h) took the measures for chacoal production

   (i) carried out the other works : _____

3.0 TEACHERS

The results of this survey recognized the important role of teachers and schools played in promoting tree planting activities. Schools form places of demonstration of tree planting technologies, with teachers taking the role of extension agents. The students are expected to acquire these techniques and introduce them to their families and villages.

3.1 Teaching level

Teachers who taught the upper primary classes (S5-S8) formed 44-69% of the total. Only 15% taught lower classes(S1-S4) and the fewest proportion (7-9%) taught in secondary schools(F1-F4). Most teachers interviewed came from primary schools and were more in touch with the rural population through their interaction with the local people via the pupils than the secondary school teachers. Because of this, they have more influence on the local population. Figure 3-1 illustrates the grade of classes the teachers (participants) taught in their respective schools.

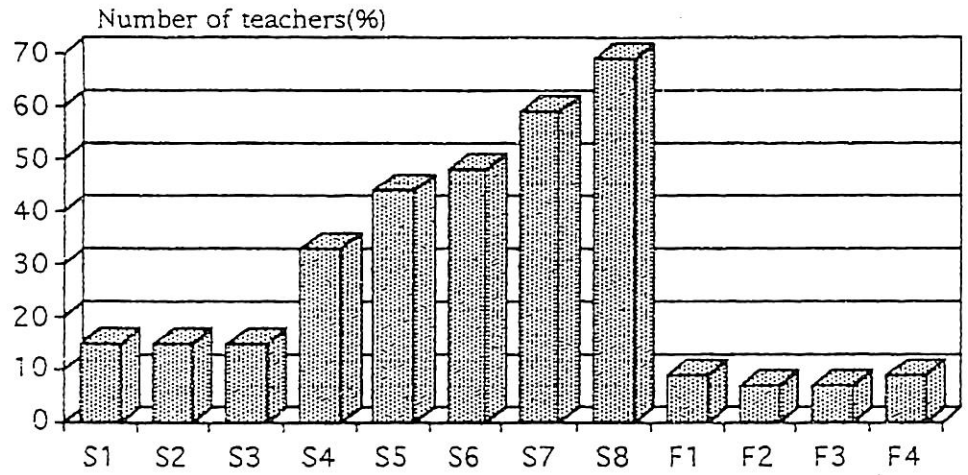


Fig. 3-1. Classes taught by the teachers

3.2 Tree planting in schools

According to the response received, many schools have planted trees in their compounds. Of these 64% have planted more than 100 seedlings. This was considered an impressive record especially if good survival could also be ensured. The project's future training may need to focus on how to improve management and selection of desired species to enhance success of planted trees in the schools because most of teachers seemed to have already grasped the importance of tree planting and put it into practice.