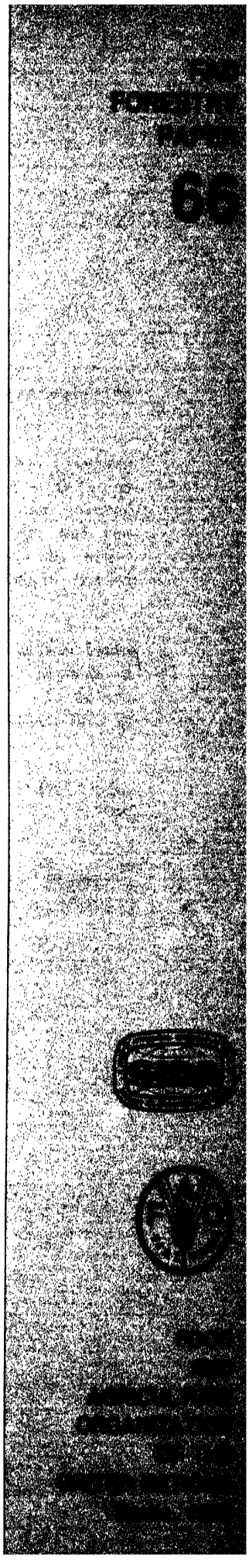
Forestry extension organization



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FOREWORD

This publication is the result of team work and based on a number of contributions from consultants and FAO staff members.

Chapters 1-3 are based on material provided by Mr. R. Noronha. Chapters 4-7 draw heavily on the work of Mr. D. Giltrow and Chapters 8-11 on manuscripts prepared by Prof. B. Stymne. Mr. C.B. Kenny-Jordan ensured co-ordination of inputs in the initial stages of the undertaking, and the final editing was undertaken jointly by Mr. H.A.Hilmi and Mr. D. Sim. Mrs. L.T. Sim assisted with typing the final text and Mr. Philip Gordon prepared the diagrams.

The document attempts to bring together some of the major institutional considerations in forestry extension. It does not claim to provide a prescription for every type of forestry extension organisation. It offers instead a broad review of institutional arrangements for extension in forestry.

It is hoped the publication will be of assistance to developing countries wishing to establish forestry extension programmes or to improve their existing services.

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CONTENTS

1. PEOPLE AND TREES

1.1 Why do people plant trees?

A very simple and quick answer is that "people plant trees because they need them". This answer is, however, too general. It does not tell an enquirer what species of trees are planted, what particular human needs they serve, where the trees are planted or why they are planted in particular places. It does not answer such important questions as: are the trees planted in fields or round homesteads: are they planted in blocks or are they dispersed? The enquirer may also want to know if people prefer to plant certain species and are unwilling to plant others, or who cares for the trees after they have been planted. The question whether the produce is shared by only those who planted and cared for the trees or by a wider group remains unanswered. The response, that people plant trees because they need them, assumes that people do, in fact, plant trees. This is a question which subsequent sections discuss in some detail.

1.2 Who plants the trees?

It is often said that people in general do not plant trees. This is a conclusion based on the assumption that special expertise and training are required to choose a tree species suited to the soils and climate of an area, to maintain the tree and then to harvest the produce. The assumption is strengthened by evidence of a sort: trees were plentiful until about two decades ago. Therefore, people did not need to grow trees. All their needs could be met from existing forests and trees. There were, of course, special instances where trees were grown, for example, Acacia senegal in the Sudan. These were said to be exceptions, motivated by the demands of the gum trade. The exceptions, however, only served to support the general assumption that people did not normally grow trees; they had no need to do so. It is only in the last few decades, with the growth in population, the increase in agriculture, the development of industry and commerce, and the rapid spread of urban areas that deforestation has spread widely. It is only in recent years that it has become necessary to start special programmes to grow trees to serve the needs of people. Most of these assumptions are, however, conclusions based on inadequate evidence. We must look more closely at some particular cases.

1.2.1 Examples of tree growing

In Zanzibar, the villagers distinguished between "wild" trees and "permanent" trees, i.e. trees which have grown naturally and trees which have been planted. Permanent trees included Cocos nucifera (coconut), Mangifera indica (mango), Artocarpus heterophylla (jackfruit), Artocarpus altilis (breadfruit), Ceiba pentandra (kepok), Litchi chinensis (lychee), Canangium odoratum (ylangylang), Eugenia malaccensis (Java plum), Eugenia aromatica (clove), and some Citrus spp. Permanent trees were planted in the house gardens and with the exception of the mature citrus, clove and mango, all allowed cultivation beneath them. The wild trees, which grew in the bush, included Areca catechu (areca palm), Elaeis guineensis (oil-palm), Raphia hookeri (raphia palm), the ribs of which were used for window and door frames, and other local palms used for house-building and mat-making. Mangroves were used for dyes, and honey was collected from these bush areas. While most of the trees mentioned are economically valuable, many more grow which have little or no economic value.

Recent surveys in the Shire Valley in Malawi showed that 36 percent of the people interviewed had planted trees within the period of five years before the survey was carried out. Most of them had planted less than 20 trees. They had planted these as individuals and not as part of a community effort. The species planted, in order of frequency, were Cassia siamea (cassia), Gmelina arborea (gmelina), Azadirachta indica (neem), indigenous trees, such as Chlorophora excelsa (mvule), and more recent introductions such as Leucaena leucocephala, and Eucalyptus spp. The trees had been planted for domestic use and not for sale. The major reasons for planting were said to be to produce poles, for shade or windbreaks, and for firewood. Cassia siamea was considered the most suitable tree in the prevailing adverse soil conditions, rainfall pattern and livestock holdings. In the Central and Northern Regions of the country, however, farmers preferred Eucalyptus to Cassia by a large margin.

In Kirinyaga, Kenya, people planted Grevillea robusta (grevillea), Croton megalocarpus (croton), and Eucalyptus spp. These trees were preferred because they produced abundant seed which germinated easily. Acacia mearnsii (black wattle), which provides both firewood and charcoal, in addition to bark which can be sold for tannin, was planted in the higher zones. Grevillea was generally preferred, however, as it is a multi-purpose tree.

Amongst the Zande, a group which lives in parts of the southern Sudan, northern Zaire and the Central African Republic, both ornamental and economically useful trees were planted in garden plots. The economic trees included E. guineensis (oil-palm), Antiaris africana (the bark cloth tree), Carica papaya (papaya), Citrus spp., Morus spp. (mulberry), Psidium guajava (guava) and Mangifera indica (mango). Many of these trees have been introduced relatively recently. The mango, the most successful of the recent introductions, was first planted in the Sudan about 1918 and has since been spread widely by the people.

Amongst the Bambara people of central Mali, economically valuable trees are carefully tended. The most jealously guarded is Adansonia digitata (baobab), which is valued for its leaves, which can be used in sauces, and for the fruits, which are the basis of the daily porridge. Mango trees are also commonly planted within their compounds. Butrospermum parkii (the shea butter tree), which sprouts naturally, can only be said to be cultivated to the extent that it is allowed to grow in cleared fields where most other trees are felled. The fruits of the tree belong to the user of the field and not to the owner of the land. Two other species which are also left to grow in fields are Khaya senegalensis (caicedra), and Pterocarpus crinaceus (ngweni) which are valued for their hard, termite-resistant timber and their leaves, which are used to feed oxen towards the end of the dry season. Ficus thonningii (dugalé) is a most important shade tree, which is recognised as being owned by its planter. Ficus platyphylla (ngaba) is another, though less important, shade tree. Cannibium hibiscus, Andropogon and Cynbopogon are shrub and grass species used for making ropes and grass partitions, which are valued by the people. Curiously, Acacia albida (balanzan) is virtually absent from Bambara villages in central Mali. This absence is explained by the fact that it was planted only in villages assigned to Fulani conquerors. In Fulani villages, however, balanzan is to be found very commonly, forming a ring round the villages and planted in almost every field. Its uses as fodder and fuelwood, and also for building, are well known.

In Nepal, a survey in the eastern Terai showed that half the farmers questioned, or their forefathers, had planted an average of 15 trees each. Now, on average, only 8 of these trees survive. They were planted mainly round the houses, in groves and orchards, or in rows between fields. Half the species planted were multi-purpose fruit and fuelwood species, amongst

which mango and lychee were the most common. Of the other species planted, the most valued was Dalbergia sissoo (sissoo). This species provides timber for houses, carts, implements and furniture, as well as fuelwood and fodder. Bamboo, which was planted by a third of the farmers questioned was the next most valued species. Most of the farmers asked had not heard of Eucalyptus and were consequently somewhat reluctant to try it.

A recent survey in Gujarat, India, showed that even amongst farmers who were not involved in the community forestry programme, the average number of trees owned was 15. The majority of these trees had been grown by the farmers' forefathers or had sprung up by natural regeneration. The most common species recorded were Acacia nilotica (deshibaval), Prosopis juliflora (gandobaval), neem, and fruit trees, mainly mango. The trees were not grown or maintained for sale but for domestic consumption as timber, fruit, fuelwood or fodder.

1.2.2 Sources of fuelwood supply

Surveys have, however, shown that even where tree planting on a voluntary basis has occurred, farmers still satisfy most of their fuelwood needs from natural or government controlled forests, roadside trees, or bush areas used in common. In the Nepal survey, for instance, nearly 55 percent of the local fuel consumed was obtained through collection or purchase from the natural forests. In the Gujarat survey, 94 percent of the households surveyed used fuelwood and twigs, most of which were collected free from government forests and roadside trees. In Kenya, most of the trees were planted by men to produce wood for construction and sale. They were not meant to provide fuelwood for domestic consumption. The collection of wood for domestic use in that area is the task of women. In Gabon, although the forests legally belong to the government, the rural population has the right to meet their personal and community needs for firewood, building materials and medicinal plants by collection from the forests. In Korea, most of the forests were privately owned. Villagers, however, still had the right to collect fuelwood from them.

1.2.3 Review of the available information

The examples mentioned allow an answer to be given to some of the questions which were raised at the commencement of the chapter. First, it is clear that farmers do plant trees, not necessarily on a large scale, but certainly in sufficient numbers to meet some of their particular needs. Second, farmers do know trees. In Papua New Guinea, for example, it is said that villagers in the West Sepik district can distinguish between 128 different types of trees. The distinctions are based on purpose, location, type of soil, etc. Wattle growing in Kiryanga in Kenya is limited to the higher zone where the people know that both soil and climate are suitable. Third, trees serve many human needs. In Peru, for example, trees grown voluntarily, that is, not under any special tree-planting schemes were, according to a survey, grown because they were considered to be, decorative, useful, suitable for house construction and soil protection, and because they provided posts, poles and firewood for their owners. Trees serve a wide range of human needs, for fibre, food and shelter. They also serve religious and medicinal needs. In India Ficus religiosa (pipal) is a sacred tree; in Senegal the baobab fulfils this role. In the last few decades "modern medicine" is rediscovering trees and plants well-known to "traditional" groups, in the Amazon, in Botswana, the Ayurvedic system in India, and the indigenous systems in China and Korea. Fourth, when trees are planted multipurpose species seem to be preferred. The mango in Zanzibar is valued not only for its fruit, but also for the wood which is used in canoe and house building. It is important to note that up to this time fuelwood does not

appear to be the main purpose for which trees are grown, unless, as in the case of wattle, the tree is grown for sale. Fuelwood, however, appears to be a useful by-product of most types of voluntary tree growing. Fifth, most fuelwood needs are met by collection or purchase, from the natural forests. Sixth, most villagers prefer the species they know. This is one of the reasons for the success of the Korean forestry extension programme which made use of local species. Therefore, as in the eastern Terai of Nepal, when attempts are made to introduce new species, even if the species have been successful elsewhere, and are known to be fast growing, there is some reluctance to accept them. Seventh, farmers recognise that different species are suited to different agroclimatic zones. Eighth, when farmers in Africa plant trees, they plant them mainly in their garden plots and only rarely in their fields. Further, there is very little evidence that there were any community planting schemes before the appearance of forestry extension programmes. In India too there is no evidence of earlier community sponsored, non-governmental planting schemes though trees are planted by individuals in fields and around homesteads. Clearly the location of planted trees is related both to the ability to care for them and the possibility that there may be conflicts over rights to the land on which the trees are planted, and consequently some uncertainty that the planter may ever be able to benefit from them. Finally, since fuelwood is mainly a by-product from trees and in many cases is obtained from the natural forests, the shortage of firewood may be the last feature of deforestation to come to the notice of a farmer. This is particularly so where women are responsible for the collection of fuelwood. Women do not normally occupy dominant economic and social roles in developing societies. Collecting fuelwood is so much part of their normal duties that it seldom ranks highly in men's views of what is most important in a community.

1.3 Changing conditions

Over the past fifty years several events have changed the balance of fuelwood supply. The world population has grown, assisted by advances in preventive and curative medicine. Industrialisation and urbanisation have drawn people away from the rural areas into urban and industrial areas where they cannot grow the trees they need for buildings, poles and fuel. There are, quite often, very few substitutes for wood as fuel. Few developing countries can afford to purchase kerosene on a large scale, and even fewer have natural gas or petroleum resources. Rising levels of literacy mean an increased demand for pulp and paper for books and newspapers though relatively little of this is met from local resources in developing countries as yet. Most of these countries still have the majority of their populations dependent on agriculture as their principal occupation. As the levels of agricultural productivity and development are still relatively low, more land has to be found to feed growing populations. Searching for new lands often means cultivating areas increasingly less suitable for agriculture. This results in cultivating steep hillsides in Nepal and Peru, in moving into common lands previously reserved for grazing in Nigeria, Mali and Sudan, and moving into marginal rainfall areas in Niger. It has resulted in felling trees in forested areas, whether these areas are fully suitable for agriculture or not, in India, the Amazon, and Malaysia, and in the reduction of the length of the fallow cycle in Zambia, Malawi, Tanzania, Ethiopia and Ivory Coast. In these circumstances, trees are competing with crops and with livestock. The need for food is immediate and urgent. Trees take some years to become productive and there is no time for long-term considerations. Food production, grazing and sometimes even charcoal production, take precedence in the economy and more trees are cut down even before they are mature.

1.4 Conclusions

The most important conclusion, then, is that tree growing is a problem concerning people, and very rarely a purely technological problem. There is already adequate knowledge about tree species and their growth patterns in many different agroclimatic regions. There is, however, a lack of knowledge of the human and economic aspects of the problem. Farmers do grow trees, as has been established above, but most species grown by them as yet, take a long time to mature. It is important to determine if they will accept new, fast growing species: in what way they can be contacted and how knowledge can be both shared with and accepted by them? It is necessary to determine whom farmers trust: whether they are government officials, members of voluntary organisations, members of their own community or only members of their own family group. It is important to determine which means of communication, film, radio, television, newspapers or word of mouth is the most effective means of transmitting new ideas and securing their adoption. Their past experiences with development programmes will undoubtedly affect their willingness to accept new suggestions. A knowledge of the roles of men and women in planting and maintaining trees is essential, as is the proper procedure for approaching women on these matters. The importance of women as decision makers in community affairs affects the proper presentation of new ideas. The priorities which farmers place on poles, building materials and fuelwood and any constraints that may exist in their area on tree growing must be considered. These constraints will be examined in greater detail in the next chapter. To understand these fully and to secure proper answers to some of the questions raised in this paragraph, it is necessary to understand people, to know how they behave individually and in groups, and to know what motivates them. This knowledge will affect the design of methods of communicating with them and of involving them in the improvement of their environment. The knowledge will influence the type of extension method selected, the levels of training required, the personnel selected and the means of communication adopted.

2. CONSTRAINTS AND OPPORTUNITIES

2.1 What are the constraints and opportunities?

What some people call "constraints" can also be seen as "opportunities" by others. For example, in Haiti foresters were usually told that land tenure patterns, and the size of holdings, were a "constraint" to the development of tree farming. It seems clear, however, that there was competition between trees and crops and as the need for subsistence crops was very great, a limit had to be placed on tree growing. On the other hand, if farmers realise that trees growing in fields will not only yield income within a few years, but also may not compete seriously with the crops around them, what appeared to be a "constraint" is now turned into an "opportunity". The problem really is how one views patterns of human behaviour. Are they to be seen as "obstacles" or as patterns on which extension staff can build? Very often there is a tendency to classify patterns of landholdings, or beliefs, as constraints when, in fact, they have not been fully understood or taken into account in designing an extension system. In other words it is possible to go ahead with what is thought to be a good proposal and then be surprised when the proposal is rejected by the people for whom it was prepared. The usual reaction is to blame the recipients and to classify them as "backward" or "bound by tradition". When carefully examined, however, this conclusion is often not tenable. The spread of new crops in Africa in the past, e.g. maize, groundnuts, coffee, cocoa, mango and neem, contradicts this. Tree crops in particular require long term decisions and a radical change from the methods of subsistence farming. It was mainly individual decision-makers who effected this change in a continent said to be characterised by traditional "communal" systems of landholding and decision making.

2.2 Design of forestry extension

The most effective pattern of forestry extension requires a functional approach. That means the designers must, with the co-operation of the people concerned, define certain goals which are of importance to the people and decide on the steps that must be taken to achieve these goals. The goals themselves must be clearly defined if the process of achieving them is to operate effectively. The goals are often related in some way to national policy. This may be based on broad studies which have been carried out of overall national needs, followed by the establishment of priorities in both tasks and areas requiring attention. For instance, the supply of fuelwood may be considered a national priority. Certain areas in which the shortage is acute may be designated for priority attention and within these areas certain groups of people may be in greater need than others. It is these groups which should be considered high priority target groups for extension.

A study can be undertaken to define the needs and to devise a suitable means of reaching the groups which have the greatest needs for fuelwood. Assessments can be made of suitable communication techniques to help the people to become aware of their situation and to offer possible solutions to the problem. When this has been done the people can be assisted to choose a course of action to meet their needs and to determine if any outside assistance is necessary to make this possible. Assistance can be given in training some of the community members to take a leading role in the communication, the discussion or the execution phases of the process. Joint monitoring by the people and the agency supplying assistance can be established to determine the effectiveness of the procedures which have been adopted. These aspects of the situation, communication, training, organisation and monitoring will be covered in some detail later in this publication. The approach to be adopted can be characterised as an approach via the community, as it is only through community action that progress can be made.

This chapter will try to consider the problem from the viewpoint of the people who are to be reached, to whom a message is to be conveyed, and who are expected to play the major part in the task of tree growing which is an essential feature of this type of extension.

2.3 Land

Probably the most fundamental factor in an extension programme is the availability of land. From a study of available statistics and an examination of conditions in the area itself, an extension forester may discover that, say, 25 percent of the people in a selected area are virtually landless, 40 percent have holdings of less than 2ha, 30 percent have holdings of between 2 and 5ha and the rest have holdings over 5ha. It may seem desirable in this case to concentrate on the 65 percent with the least resources. There are several other items of information, however, which must be considered. Do the "landless" group have any land at all on which to grow even a few trees? Are they too involved in earning a living through wages for their labour to have the time or the energy to plant and care for any trees at all? If plants are to be supplied free of charge to certain groups, will this cause resentment amongst other groups who do not qualify for this concession? For the 40 percent who have land holdings between 2 and 5ha a major question is the nature of the title they hold to the land they occupy. It is necessary to find out if they are tenants or share-croppers and if the area is one in which shifting cultivation is practised. If it is so, is it possible that the farmer will move away from the farm before the trees reach usable size? If farming plots are reallocated periodically, what is the chance of a particular farmer being able to retain, or later recover, a plot on which he has planted trees?

Other points must be considered if the goal is to develop forestry extension on common lands. Is the area available sufficient for this purpose? Often the availability of land is only theoretical. What appears as available land in government records may already have been encroached upon either by important persons or by landless peasants. The land may be used by different groups with unequal powers such as village herdsmen or itinerant graziers. The village group may have the possibility of using other grazing areas or of feeding their cattle on fodder trees or agricultural residues, but for the itinerant herdsman, this may not be possible and his need to retain the use of the grazing area at a particular time of year may be much greater. Even within the village population the allocation of common land to forest use may have different effects. The problem is how to convince those who will be most affected to join, or at least, not to oppose the venture. A promise that grass will be available from the plantation area within two or three years may not be adequate for someone who has no immediate alternative of source of fodder for his cattle. An offer of cash assistance, or of paid employment over this period, may not meet the needs of a cattle owner who wishes to retain his animals in the meantime.

The assumption so far has been that there is sufficient common land available and that the problem lies in the different uses made of it by groups within the community. It is necessary, however, to determine what is "sufficient" land. The meaning depends on the goal of extension forestry in a particular locality. If the goal is a plantation meant to serve only to demonstrate that trees can be grown successfully, then a plantation of 1 to 2ha may be adequate. Most farmers know the local tree species so the demonstration can be limited to exotic species, or to some local species to which a new growth or management technique can be applied. If the goal is more than a demonstration, then the area selected must be sufficiently large to meet the particular objects of the plantation. This, in some cases, may include multiple use for fodder, poles, fuelwood and timber, and in these

circumstances a much larger area may be required.

2.4 Social and economic considerations

Whatever the objects of the plantation, three other matters have to receive consideration. First, the source of the labour required for establishment, maintenance and harvesting of the crop. Second, whether any payment should be made for labour involved in planting operations. Third, the distribution of the produce both during growth and when the crop is harvested.

2.4.1 Labour

Some projects seek to resolve the problem of labour by ignoring the question. The forestry administration is left in charge of the operations, it employs labour for plantation establishment and protection, it harvests the crop, disposes of the produce and distributes the income after deducting the costs of the work done. The community then allocates the income, or at least a share of it, to projects of its own choosing. This has been the pattern with many projects in India, in the past. This system, however, does not transfer any forestry or management skills to the local population and it is doubtful if it even serves much purpose as a demonstration technique, since members of the community have no responsibility for decision taking or organising. The local population may get the impression that the project is a "government plantation" in which the interest of the community is confined to an occasional cash return. The community do not identify in any way with the execution or ownership of the project.

Assuming, however, that local labour is to be used, should wages be paid, and if so who should fund the payments? Local leaders may promise a supply of voluntary labour and quote instances where they have successfuly completed projects on this basis. The extension staff cannot always be sure how that labour was obtained or whether the "volunteers" were under some form of duress or obligation to the leaders to carry out the work. Community or social pressures may be used to impose the burden of taking part in "voluntary" labour on members of the community who are least able to devote their time and energy to it. In the end, the leaders may take the credit but those who have done the major part of the work remain unrecognised and perhaps unlikely to benefit much from it in the end. In the case of very poor or landless people, some form of payment is essential. They cannot devote their time or limited energy resources to this type of work without reward of some sort.

If funds are to be used to pay labour the question arises of the source of these funds. If government provides them, the people may get the impression that the plantation is really owned by the government and that statements that it is the property of the community are untrue. The community, however, may not have sufficient funds to pay wages or they may need their funds for other purposes. The possibility of support by non-government organisations, who may give aid in the form of cash or food should, however, always be considered. Before any final decision is made about payment, one factor must be examined carefully. If the people have any record of successful community projects in the past, how did they succeed in these? Who took part in the decision making and how were the decisions made? Who received the benefits? If the pattern appears to be suitable for use on this occasion, it should be followed. If not, or if previous efforts have not been successful, a fresh attempt must be made to solve the problem of wage costs and the related question of benefits.

2.4.2 Distribution of benefits

A decision on this must be made at an early date, usually before the project is started. Outside advisers may have their own notions of equity in this matter and assume that discussion with community leaders may be all that is required to secure acceptance of their views. The leaders may show a willingness to agree, but have no real intention of carrying out the plan when the time comes. To avoid this happening it is necessary for this matter to be discussed by the whole group taking part in the project so that the widest range of views can be taken into account before any decisions are made and that these are known to all taking part. In cases where it may be impracticable to distribute fairly either the actual produce or the income from it, general agreement should be reached on how the income should be spent. This must take into account whether it should be spent on the whole community or whether the benefits should be limited to those who participated directly in the project. In general, people will only take part in a community project if they are convinced that they will eventually get something out of it.

2.4.3 Land tenure systems

A decision on whether to promote community or individual forestry activities depends very much on the system of land tenure practised in the area and the locations of the plantations. In many countries in Africa the ownership of trees is separated from the ownership of land. In some cases, however, when a person plants a tree on a piece of land which is not being used at that time, the planter may be able to claim title to the land. Unless the planter can protect the tree, however, other people are quite likely to cut it down, or let their animals browse it before it becomes established. This is one reason why it is often difficult to get people to plant trees on common land. In many countries common lands have now been transferred to government ownership and the former traditional systems of control of use are no longer effective. Common lands may then appear to belong at the same time to everyone in general, and to no one in particular. Their proper management in these circumstances raises many problems.

When an individual plants trees in the field, he may meet with the problem of boundaries that are not well defined and there may be no surveys to support a claim to a particular area. When trees are interplanted with crops there is also the possibility that their shade effect may reduce output. The views or beliefs of the local people on the extent to which this happens may be an important factor in securing acceptance of this method.

2.4.4 Extension staff

An important feature of extension, which influences the acceptance of both individual and community forestry projects, is the person who will supervise the project. If he is a person who has previously exercised a control or enforcement function in the area, he may be seen by the local people as biased in favour of the authorities or the established leadership. Extension staff also will inevitably have dealings with the local leaders and this may create the impression that their interests are more with them than with the people in general. Where there are factions in a community (and this is very often the case), or where there are substantial differences in incomes or landholdings, the way in which the community perceives extension staff is crucial. If, in the eyes of some members of the community, a staff member is identified with a particular faction, or if he or she is regarded as one who is simply doing a job with no real interest in the community, the work is much less likely to succeed.

2.5 Timing of activities

Some important questions regarding labour have already been discussed. In this section it is necessary to consider the timing of forestry activities. In the Sahelian (and much of the savannah) zone of Africa, and in some other countries, the rainfall is low and variable. Crop operations have to be very flexible to take advantage of the rainfall as it occurs. Tree-planting operations may conflict with food crop cultivation, though grain crops can usually be planted successfully before there is sufficient build-up of moisture in the soil to allow successful tree planting. More often the conflict lies at the time of weeding of the trees, which is likely to coincide with periods when food crops also need intensive tending. Weeding at the end of the first growing season often coincides with the grain harvest. In these circumstances tree crops are likely to be neglected. This is likely to occur in any area where food or cash crop production is considered more important than tree growing. Therefore, if people are to be encouraged to grow trees, the timing and the scale of the operation must take into account the availability of labour at critical times during the year and the probable total build-up of work if the tree planting programme continues for more than one year.

Labour migration for economic reasons is still common in some areas. Where this occurs, any proposed forestry programme must consider if the population remaining behind at a particular season is of the right balance, both physically and in terms of the cultural division of labour, to carry out any necessary forestry operations. It is important also to consider if those remaining form the accepted group to take major decisions concerning the work which may arise from time to time.

2.6 Species

The people must not simply accept any species offered to them in an extension project. They must be allowed to choose the species which they believe, after proper advice and consideration, to be the best suited to their needs. The extension staff must find out in advance what species are grown in the locality, and why they are grown. They must also find out what problems the community faces in raising these species, or why they are not already available in adequate numbers. They must be able to present alternatives, both in terms of new species or in methods of raising known species, which they must be willing to discuss fully with the community. To present the community with a "take it or leave it" approach is to invite failure, even though the species offered may appear to be, technically, the most suitable. Failures in this respect have occurred in parts of Africa in the past.

2.7 Species availability

Once a species has been selected it is essential that it be made available in the required numbers. Too often the supply of plants does not meet the demand, or the plants arrive too late, or the nurseries are located too far away, requiring long distances to be travelled before a planting site is reached. This is a situation where voluntary organisations and private farmers have proved useful in raising the numbers of plants required in the right place. If tree growing is to become widespread, nurseries should be located reasonably close to the planting sites. This means establishing a number of small, dispersed, nurseries which can be closed after they have served their purpose. Public forestry operations, because of administrative and budgetary procedures, cannot always respond quickly to these changes. Production by voluntary organisations or private growers is sometimes cheaper and more flexible in this repect.

Where nurseries are located far from planting sites, the number of plants that can be transported is reduced in proportion. This may lead to criticisms that the forestry administration has only the interests of the more prosperous members of the community at heart, as only they may have the time and resources necessary to collect and transport the available plants. A major factor in the success of the tree-growing projects in Kenya and India (Gujarat) is the widespread dispersal of the nurseries. Another important factor in a planting programme is the containers in which the plants are produced. Polypot containers are useful when distances to be walked are short and the number of plants required is small. In Nepal, some years ago, farmers were observed to throw away the polypot and the surrounding ball of earth to lighten the burden of carrying the plants. The resulting survival rate is not known but is likely to have been much lower than it would have been for plants with the soil intact. In Gujarat an attempt has been made to overcome this problem by producing seedlings in wicker baskets containing about 1,500 plants each and distributing these to the village sites. In Kenya in the 1950's a system of selling packets of seed at a nominal price was introduced to allow people to grow their own plants. This programme proved to be extremely successful.

2.8 Price of plants

The question of whether a charge should be made for plants supplied to the public is not an easy one to answer. There are as yet no detailed studies of the impact of price on the demand for plants. There may even be variations within a country, with some states charging for plants and others not. There is some evidence, however, that when tree cultivation increases in popularity private dealers start selling plants as an alternative to the public supply. This occurs in some areas in Bangladesh. An important consideration is whether the poorest people can afford to pay for plants. If they cannot, is it right to supply them free while making a charge to others who can afford to pay? It may be difficult to discriminate in this way and even more so to decide who should qualify for free plants and who should not. Another important point to decide is whether charges should be levied when a programme is started or should be delayed until it is achieving success and attracting local support. These are questions for which there are no definitive answers, but which must be carefully considered at the commencement of each programme.

2.9 Extension follow-up

One of the areas where forest authority extension programmes have generally been inadequate in the past is in following-up what has happened to the plants after they have left the nursery. It may be assumed that all the plants lifted have been planted and that most have survived. For reporting purposes, staff tend to rely mainly on the numbers issued. There is often very little attention paid to how many plants are actually planted, how many of those planted survive and what problems people face in maintenence and protection after they are planted. This failure of extension staff to follow-up the planting operation often leads to poor results, disillusionment by the people, and a breakdown in the programme.

The extent of extension follow-up was studied in Tanzania and found to be a crucial factor in determining the success of planting programmes. The concern of the people could be summed up in statements that the forest department did not really care; that after supplying the plants they failed to supply further information on the use of fertilisers, on weeding, or on disease control. Staff were criticised for failing to visit planting areas promptly after they had promised to give advice. While it may be difficult to substantiate all these claims they do point to the need for a regular

schedule of visits, well publicised in advance, to areas where trees have been planted to attend to such problems as they arise.

An element of regularity may not in itself be sufficient. It is important for the people to trust both the advice they are given and the person who gives it. There may already be an established extension organisation, for instance one run by the agricultural service, or by a non-government organisation (NGO), which enjoys the trust of the people and to duplicate this with a forestry extension organisation may be both expensive, and to some extent, counter-productive, unless the advice given by the two organisations is carefully co-ordinated. Where an established extension system already exists consideration should be given to whether it can also be used to convey information on forestry matters to the people. Co-operation in this way should avoid any conflicting advice being given. In this case, personnel from NGO's, who may be both highly motivated and trusted by the people, may in some cases take over the functions of extension work in forestry. Though this may not always be acceptable to public officials, the main goals of extension and the needs of the people should take precedence over matters of procedure.

2.10 Credit

This is a factor in tree growing to which to date inadequate attention has been given. Credit is sometimes thought of simply as compensation for loss of income when trees are being planted. Credit may be arranged for the purchase of fertilisers and pesticides or even plants but credit is seldom offered for harvesting. The direct costs of efficient harvesting are often overlooked and may result in a poor performance, with much waste of material, and a lower return for the efforts expended. Even the otherwise successful Paper Industries Corporations (Picop) project in the Philippines unfortunately neglected this factor.

2.11 Marketing

The development of suitable marketing channels and the supply of price information may also be vital to the success of a project. If tree growing is to move from a subsistence level activity to a revenue earner for the people, as appears to be the current trend, it is unsatisfactory for the producers to have to rely on underdeveloped market channels where the lack of information on prices leaves them at the mercy of middlemen. While large producers may be able to wait for seasonally favourable prices this may not be practicable for the small producer who may not be able to store the produce or who may need immediate income. The result may be considerable variations in the returns per unit of output received by large and small producers. This is an area where a link with an established co-operative sales organisation might be valuable.

2.12 Legal considerations

The matter of outdated laws is also of importance. An extension organisation can do little to change these, other than to promote a general awareness of their effects on producers, and hope that public pressure will in time bring about a change. It can, however, inform the people concerned what species are designated "reserved" and how that affects a planned production programme. In Nepal, for instance, Dalbergia sissoo continues to be on the reserved list and in Niger and Haiti, all trees belong to the State. The extension organisation can, where necessary, campaign for the removal of some "reserved" species from the lists and may also try to secure a modification in the law relating to the State ownership of trees.

Another aspect is the requirement, in some areas, that a permit be issued before any trees can be felled. This rule is both necessary and reasonable where most forestry areas are under the control and management of the forestry administration. It makes little sense, however, when applied to trees which have been planted by individuals or groups of people under an extension programme for a specific purpose and are analagous to an agricultural crop. Such restrictions with regard to species and felling of trees act as a check on community forestry development. They introduce an element of doubt, and often occasion considerable delay in harvesting operations, which discourages tree growing.

2.13 Conclusion

Forestry extension staff require an understanding of the community and the conditions under which they live before forestry can be introduced and can spread in an area. The belief that rural dwellers were unaware of tree species and had never undertaken planting in the past is erroneous. This fact alone must influence the approach to communities. Extension, which has its aim to make people full partners in a programme of community forestry development, requires an understanding of the people and of their needs and their goals. It requires the choice of the most efficient means of communicating with them to make the community partners, and not mere students of the enterprise. The design of the extension system must relate to the opportunities that are available within the community so that forestry can spread by local efforts. External intervention should act as a catylist and not serve to prolong local dependence on outside assistance. Community forestry can only be termed a success when outside intervention (or subventions) are no longer necessary.

3. DEVELOPING FORESTRY EXTENSION PROGRAMMES

3.1 Initial approach

An essential feature in developing a successful forestry extension programme is to determine whether the people concerned feel a genuine need, and are prepared to take some action to meet it. They must also show a willingness to give up their time and energy to achieve their aims.

The response of a forester to a request for assistance by the local people depends on the priorities he has been given by his administration, or which he has set for himself. It is very desirable, therefore, that in every forestry administration at the district level, either the officer in charge of the district, or a member of his staff, specially designated and trained, has the time and resources available to respond to any reasonable request for advice and help, and to assist in developing a realistic programme to meet the need. The response may initially be a careful discussion of the situation with the people concerned, followed, if it appears to be desirable, by a visit to the area to relate the points discussed to the conditions on the site. The function of the extension staff is initially to assist local people to define their needs and to suggest plans within the limitations of the people's own resources to meet these needs. They should indicate, where feasible, a number of realistic possibilities as a guide to the people in making an appropriate choice.

3.2 Preliminary organisation at district level

Although each country has its own administrative structure, it is suggested that the main operational organisation of forestry extension programmes should initially be at the district level, but that these functions ought to receive strong administrative and operational support from the highest levels of the administration. Certain conditions must be satisfied if a forestry extension programme is to have a reasonable chance of success. Some of these are discussed briefly below.

3.2.1 District forestry extension officer

An experienced professional, or in some cases a technically trained forester, should be in day-to-day charge of the extension programme. This person may also be in charge of all other district forestry activities but in areas where extension work forms a large part of the district programme it is very desirable to separate extension from the management or protective functions. In this case, however, the activities of the various branches must be properly co-ordinated so that there is no possibility of conflicting policies being followed. Adequate training courses in extension activities must be provided for staff selected for extension duties either during their initial training or in an in-service training programme before assuming responsibility for this work.

3.2.2 Forestry extension officers

These are normally selected from holders of a diploma in forestry and should be capable of serving several communities in an area. They are responsible for the implementation of approved forestry extension programmes. They require training either on a pre-entry or an in-service basis. They are normally required to direct the activities of forestry extension assistants who come mainly from the communities they serve.

3.2.3 Forestry extension assistants

In some areas it may be desirable to appoint forestry extension assistants, possibly on a part-time basis. Their function is primarily to act as a link between the members of the local community who are taking part in forestry extension activities, and the forestry extension officers. They should receive a period of training in simple communication techniques and in organising local forestry extension projects. They should be capable of demonstrating all the normal working techniques involved in extension programmes in the area.

3.2.4 The need for forestry extension programmes

In the initial stages, the need for a forestry extension programme may not be properly recognised by the people concerned, though it may be recognised by foresters and other staff engaged in land-use activities. For a programme to succeed, however, it is necessary for the people themselves to recognise the need and to agree that something must be done to meet it. Therefore needs or opportunities may have to be brought to their attention by some tactful comments and suggestions.

3.2.5 Co-operation with other land development agencies

Forestry extension programmes cannot proceed without due regard to other rural development programmes in the area, or conflicting advice may be given to the people. Where links do not already exist it may be necessary to establish them with any existing agricultural or livestock development programmes to ensure effective co-operation at the district or community level.

3.2.6 Extension staff free from regulatory duties

In some areas local forestry extension staff may be required to issue permits, enforce forestry regulations, and carry out certain legal duties. As far as possible these enforcement duties should be allocated to other staff to encourage the people to adopt a more positive and co-operative attitude towards the extension staff. It is good for the extension staff, however, to have access to information on requests for, and the issues of licences and permits, as these give an indication of the demand for forest produce in an area. This may indicate areas where demand is high and some extension activities are required and may be successfully launched.

3.2.7 District level training facilities

In the initial stages of a forestry extension programme it is essential to provide appropriate training for staff and for members of the community taking part in the programme. To avoid the inconvenience of travel over long distances, and to ensure that the training is relevant to local conditions and needs, reasonably comfortable and convenient training facilities to meet a variety of training needs should be available in at least one location in the district. It may be possible, however, to make use of rural or agricultural training facilities where they exist, both to limit costs, and to achieve closer co-ordination with other types of development work.

3.2.8 Financial resources available

It is essential that adequate funds should be made available to the district forestry extension staff to supplement local resources where community programmes are either being held back by the lack of resources or could be further developed if a small subsidy or loan were available. These funds may, in some cases, be made available through a development loan fund, where

money drawn out is repaid and recirculated to others in need of funds, or by a specialised banking agency. Whichever method is adopted, the procedures for securing aid should be as simple as prudent financial control permits, so that applications will not be discouraged or delayed by complex administrative procedures. It is particularly important, however, to ensure that no financial malpractices take place in the processing and granting of such loans.

3.2.9 Review

These conditions (together with others which local experience may indicate to be important) contribute to the strength of a district level forestry extension programme. They are not in themselves, however, sufficient to ensure the success of a programme. Securing trained extension staff may initially involve borrowing suitable persons from other development agencies and providing them with short courses in basic forestry techniques while sufficient forestry extension staff are being recruited and trained. A suggested planning procedure for developing extension programmes is represented in outline in Fig. 3.1. The stages in this procedure will be discussed in the remainder of this chapter.

3.3 Starting-up community level programmes

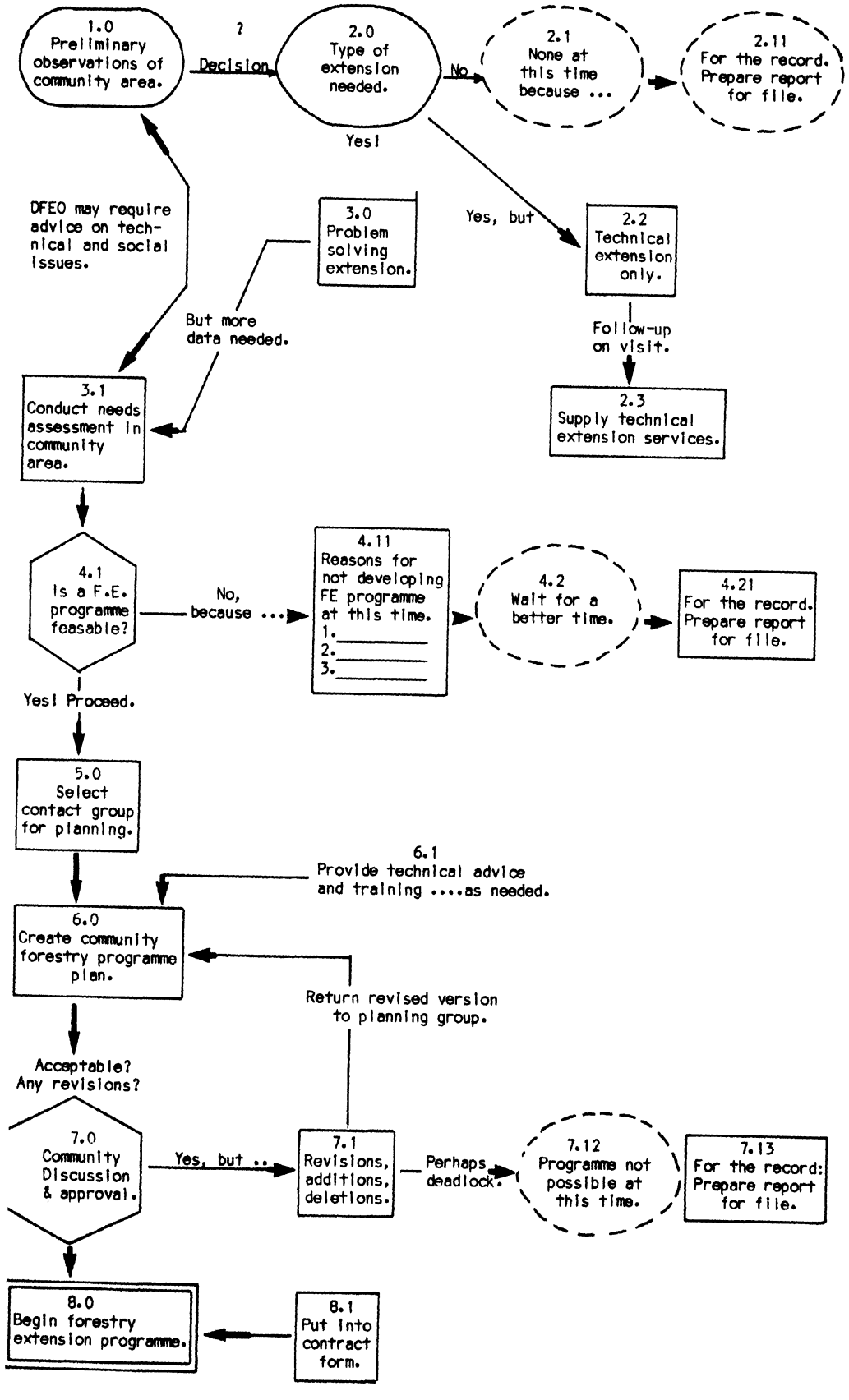
Important factors in effective forestry extension programmes are the skills and motivation of the forestry extension staff in the area. They need to understand clearly what they are doing and why it is being done. For this they need to be rewarded adequately, though this is something which is likely to be decided on a national rather than on a local level, and which is considered in detail in Chapter 11. In some cases staff may be able to benefit from the experience of previous extension activities in other fields such as agriculture, health, and community development. Experience in areas, such as the Village Aid and Village Level Workers' Programmes in India and Pakistan in the 1950's, has indicated that unless their task is clearly defined, and limited in scope, nothing substantial is likely to be achieved.

Some simple guidelines in organising their work are as follows:

- make sure the staff know why the extension work is being done;
- train and motivate them to work for the maximum benefit of the community;
- make sure that everyone else who might influence the extension programme understands what the programme is trying to achieve and the means that are being adopted. This group should include politicians, administrators, extension staff in other sectors, other foresters and community leaders.

Fig. 3.1 suggests how these principles may be applied to the early stages of a forestry extension programme. Though following these steps will not necessarily guarantee success, ignoring even some of them will increase the risk of failure. There are, however, a number of factors such as land ownership patterns, social customs or the role that men and women play in specific tasks which may require particular attention in certain areas. The method of approach should aim at improving the chances of success by verifying that conditions are favourable at each point where a decision has to be made before moving on to the next stage. At all stages clear indications of community commitment to the programme are necessary.

Figure 3.1 Forestry Extension Programme Planning Process: A Sketch Map of How To Get There For The District Forestry Extension Officer.



3.3.1 Preliminary observations in the community

There are a number of ways in which communities, which are likely candidates for a forestry extension programme, can be selected. A most favourable sign is if the people themselves have sought help. More often, however, visits have to be made to places where forest areas have been reduced, fuelwood or poles have become scarce, water catchment is in danger, or where it appears that planting trees could improve land now used exclusively for crop production or grazing.

At this early stage it is better to collect information by observation and by friendly conversation with the people than by direct questioning, formal surveys or too obvious signs of government officials at work. The object is for the extension officer to form an opinion on whether an extension programme is needed or not, and if one appears to be needed, what type of services are required. Such an opinion depends on a combination of technical forestry knowledge and an awareness of social and economic factors in the area. It is usual for the officer in charge of forestry extension in the area to undertake the preliminary investigations. He may seek the advice of extension staff in other fields, such as community development, and may even be accompanied by some of these people, if he feels that this is a useful step in the initial stages. The decision on how to proceed depends, however, very much on the understanding by the person of the community he serves.

Following one or more informal visits it should be possible to make a preliminary decision, either:

- extension of some sort should be of value to the community; or,

- no extension should be attempted at this time.

The preliminary decision may be based largely on facts gathered during the visits or possibly on a general feeling based on past experience in similar circumstances. If a decision is made against promoting an extension programme in the area at that time, simple reasons for this should be recorded which will be of great value if the proposals are raised again at a later date. If a decision is reached against proceeding at this time, attention can then be directed towards work in another area.

3.3.2 Choice of type of extension

If an area seems ready for an extension programme, a choice can normally be made between two main approaches:

- individual extension, (mainly technical extension); or,

- community extension, (mainly problem solving extension).

These two types of extension work do not necessarily operate independently of each other but each approach emphasises different objectives and sets different targets.

In the past extension activities have generally been concerned with providing technical advice. They aimed at the transfer of technical information and the adoption of new techniques by individuals. The extension staff tried to serve as the source of research information to progressive farmers or people who valued their advice. Examples of this type of extension in agriculture are: the introduction of new species or varieties, improved spacing of crops, plant protection, and irrigation methods.

Community extension is also concerned with providing sound technical information, but more emphasis is placed on achieving community action to solve problems facing all the members rather than a selected few. Forestry extension depends mainly on the community as a whole developing a plan which will secure some desirable general objectives, such as better use of the land, and some specific benefits such as additional forest produce in the future. In this case the problem may not be solved by technical information alone. Skill in dealing with groups or factions in the community, and persuading them to act together, is necessary. Bringing together, and making use of, existing community resources may be as important as introducing an appropriate technical solution to the problem.

For these reasons, an attempt must be made at an early stage to determine if community extension methods would be appropriate. It may be that the community is experienced in solving problems by community action in other fields, such as in social development, in which case the provision of technical information or guidance is all that may be required. If no strong co-operative community spirit already exists it may be necessary to seek the assistance of others, such as community development staff, and to commence to solve a forestry problem by community action in some entirely different, but more acceptable, field of work.

3.3.3 Assessment of needs: identifying problems and priorities

The study of community needs has, up to this point, been informal and based largely on personal impressions. There is, however, a need to carry out a more detailed and systematic examination of what people consider to be important to them. This should stimulate a two-way flow of information: the extension staff learn about the community and the members of the community get to know the extension staff. The work should be regarded, to some extent, as a public relations exercise, helping to present the extension organisation in a favourable light while gathering information vital to a successful extension programme. The selection and training of the community extension staff who carry out the survey must be done most carefully as they represent the forestry administration, in the eyes of the community, at a crucial stage in the development of a programme. In some cases it may be more advantageous to sub-contract this work to a university or a specialist organisation to ensure that it is impartially and effectively carried out.

The survey should cover a large proportion of the members of the community. Though no attempt has been made here to give a specific format for the survey, as these can be found in more detailed texts on social sciences, some of the questions which may be asked are listed below. These should be modified to suit particular areas and should be carefully scrutinised before use to eliminate any unnecessary or irrelevant questions which may annoy the people taking part in the survey.

- What are the problems of the community?
- Can these problems be arranged in any order of priority?
- What has been the past experience of the community with forestry activities?
- What are the patterns of land tenure in the area?
- Is there a recognised community leadership group? If so, who are they?
- How are communal decisions made by the people?

- What are the individual as distinct from the community needs?

- How do different groups in the village differ in their views of priority needs (e.g. the women, the poor, the elderly, youth, land owners, tenants etc)?

- How difficult is it to get access to the area with supplies and materials throughout the year?

- Are there any functioning and respected co-operatives in the area?

- Has there been any resistance to, or resentment of, forestry activities by the people in the past?

- Is there any existing group which could serve as a contact group for organising forestry extension activities?

- What existing resources are there available in the community (e.g. knowledge, skills, natural resources, wealth)?

- What has been the experience of other agencies of the government in working with the community?

- Are any other government agencies working in the area, (e.g. agriculture, livestock, community development), seen to be helpful to the people and to be co-operating with one another?

- Is there any suggestion of corruption or mismanagement of resources in the area?

Either a number of alternative lists, or one comprehensive list from which relevant questions can be selected to suit particular cases, should be prepared. All the questions should directly or indirectly help to make it possible for the people themselves to make a decision on starting a forestry extension programme in the area. The information collected should, however, be of value later in planning a detailed programme of activities.

As far as possible questions should be framed, and the staff trained to ask them, in such a way as will produce an honest and frank response. If not, the person questioned may give answers which he considers may please the questioner, or perhaps in some way discourage any further action being taken in the matter. The advice of social survey experts may be important provided they are fully acquainted with the particular community, their standards of values, and their way of thinking. Generalised questionaires from an entirely different cultural background will, however, be of little value to field workers, who should not be afraid to learn for themselves by trial and error.

It is best initially to interview people as individuals or as family groups. In less developed communities interviews by family groups, rather than as individuals, may raise less suspicion and prove more acceptable. Information or suggestions offered by individuals may be further discussed by larger groups or by the community as a whole to check their validity and acceptability and to obtain a collective reaction to them. This provides the staff with some clarification and insights into both individual and collective thinking. The information obtained may be used as a basis for subsequent planning, implementation, and evaluation activities of the forestry extension programme. The collection and organisation of the common information provided by the people is a useful exercise and a preparation for the making of

decisions by the people. Both the extension staff and the people should benefit from this activity.

Information provided by a needs assessment should provide a basis for:

- going on to the next stage of selecting a contact group and discussing a possible forestry extension programme; or,

- deciding to defer further work in the area as the necessary conditions for success do not appear to be present.

The circumstances suggesting that a programme would not be successful may not be the fault of the community, and corrective action by another government agency may be required before any possibility of success may arise. The system of land tenure may be such that the community would not benefit directly from any tree planting activities carried out. Thorough discussions with the community and a consensus on all major points must be secured before the extension staff proceed to the next stage of identifying and selecting a suitable contact group to provide local support for any proposed extension programme.

3.4 Developing a forestry extension programme

On the basis of the information gathered by the procedures suggested above it should be possible to commence to develop a forestry extension programme. The planning process should be systematic, but not rigid. Decisions at each stage should be based on the increasing amounts of information available, as co-operation develops between the members of the community and the extension staff. Many factors such as weather, the availability of resources or human responses to situations, cannot be predicted accurately. Both the plan and the approach of all the people concerned must be sufficiently flexible to allow modifications in the light of new information or to delay further developments when the situation is not favourable to their implementation.

In some extension efforts in the past failures have resulted from poor planning and misunderstanding of the work involved. Such losses can in future be reduced by good management. A key factor of this is to identify responsibility for each step in the programme. The selection of a suitable community group to plan and carry out forestry extension activities helps in defining responsibility for action.

3.4.1 Community contact groups

One effect of changes that have taken place in rural areas in recent years has been the growth of organised groups. Such groups have arisen from a number of sources such as political parties, economic activities, local government organisations and the change from traditional or family based relationships to broader groups based on common interests. As a result we now often find branches of political parties, produce co-operatives, development committees and religious organisations at village or community level. The existence of such groups is a good indication of the potential of a community to undertake activities to improve its economic situation or its environment. Forestry extension staff must be able to assess which group in a community is most likely to be able to gain broad support in planning and carrying out a forestry programme. Unless they can locate an effective contact group they must undertake the difficult task of creating an "ad hoc" organisation for forestry activities, or confine themselves to working through families or individuals

The following types of groups provide a focus for action.

3.4.1.1 Voluntary associations, (also known as non-government organisations or NGO's)

Women's clubs, church groups, youth clubs, adult education groups or voluntary agencies not directly associated with the government or a political party, often have their own leadership and objectives which can, with some assistance, be directed towards rural development in addition to their particular interest. A major advantage is that they normally continue to exist for some years and have a degree of continuity of membership and leadership. This contrasts with government officials who frequently serve only for short periods in remote areas.

3.4.1.2 Co-operative societies

These groups are similar to voluntary associations but they are normally controlled by government legislation and have specific economic objectives and usually some financial resources and experience in their particular field of business. Some co-operatives have their own extension staff who because of their local knowledge and contacts can play an important part in forestry extension activities. Co-operatives are likely to be groups which because of their experience and general interest in development matters could support forestry extension activities.

3.4.1.3 Traditional community organisations

In areas of the world where traditional organisations have not yet been replaced by new groups such as those mentioned above, it may be possible to adapt the traditional system to rural development work. These groups may, however, survive as a form of resistance to change and it is important to assure the members that, while their way of life may change, it will be in a manner acceptable to them.

3.4.1.4 Contemporary community organisations

Communities in some countries have changed from the traditional organisation to one reflecting the wishes of government and the political parties. They have, in effect, become integrated into the government system. In this case government or party organisations and leaders can provide a focus for change amongst the people.

3.4.1.5 "Ad hoc" groups

Some very effective changes can be brought about by citizens who band together to meet specific, urgently felt, needs. Examples are community groups set up to try to solve the problems of fuelwood or other forest produce. The difficulty here is that unless leadership, genuine community support, and technical assistance are available quickly, the group may break up without achieving its purpose.

3.4.1.6 Other possible contact groups

Other likely groups are farmers' associations, schools, traditional dance groups, and even-age grades in societies which have strong traditional initiation ceremonies. Emerging groups in refugee or re-settlement camps may provide suitable contacts and may also assist in binding strangers together by common effort.

3.4.2 Political influences

Where a government or dominant political party has a strong influence in rural areas considerable care must be taken in selecting a contact group. From one standpoint a group may be viewed as an extension of the government organisation. From another it may be looked on as a potentially subversive organisation. Extension staff do not want this sort of misunderstanding to affect the work they are trying to carry out.

3.4.3 Working with groups

In proceeding either with or without the help of an existing group extension staff take a calculated risk. If the group chosen has a defect (e.g. it is not representative; dependant on one person; not interested in the community as a whole), then the effort may not succeed. If an "ad hoc" or new group has to be formed it may be too inexperienced or poorly selected to carry out a long term task. In this case the only choice is a government selected and appointed community group, or some other existing group or committee which is responsible for forestry activities, soil conservation or extension generally. In some countries the only available community group may be dominated by powerful private forces which may or may not find it in their interest to promote forestry extension. Under normal working conditions extension staff are unlikely to find a perfect contact group. Except where there are clear indications to the contrary they should make the best choice they can from the groups available and willing to assist.

3.4.4 Responsibilities of contact groups

The group selected must be willing to carry out some or all of the following tasks:

- create a forestry extension plan which will involve all, or at least a major part of, the community;
- take responsibility for gathering and using community resources to carry out the plan, even if there is very little outside support;
- provide leadership and an example in community activities associated with forestry extension and any similar development work;
- provide continuity in what is likely to be a long term project;
- encourage other groups to join with them in forestry extension activities;
- share fairly any economic gains with the community;
- make good use of whatever outside assistance is available (e.g. from forestry extension staff or from NGO's);
- negotiate with government, companies or individuals for land and materials required for forestry activities.

The above points can serve as the basis of an agreement which the group undertakes when offering to serve as a contact group for a forestry extension programme. The agreement can be set down simply in a letter or a memorandum or more commonly entered into the group's minutes as part of the discussion

on becoming involved in forestry extension. At some later date it may be desirable to draw up a full legal document. Where such agreements enjoy high public regard it is good to do so. They should be avoided however where oral agreements are customarily regarded as valid and binding. The main objective is always to establish that the local group is committed to provide leadership in the programme of forestry extension within the community.

3.4.5 Creating a forestry extension programme

At this stage the emphasis must change from patient discussion of possible lines of activity to drawing up a more detailed workplan which should in time be set down as a simple written document.

The plan should state the following briefly and clearly:

- the goals:- the broad general purposes of the plan;
- the objectives:- a more detailed statement of the steps necessary to achieve the goals in their order of priority;
- the timetable:- an outline statement of when the various tasks should be accomplished in order to achieve the immediate objectives;
- the responsibilities:- a clear statement of who is responsible for planning or executing the various steps to carry out the tasks agreed as necessary, e.g. who negotiates for the land, who organises community labour, who organises transport of plants to the planting site, etc.;
- the procedure for sharing costs and benefits etc.; (Detailed attention should be given to establishment and maintenance costs, and agreement reached on sharing or ploughing back revenue from any intermediate or final yield. Agreement may also have to be reached on matters such as the use of grass under a tree crop, and the disposal of prunings and thinnings.)
- ways of monitoring and evaluating the programme, regular assessment and discussion of results achieved to date and lessons to be incorporated in future development plans.

The process of preparing the plan must itself be looked on as a learning exercise in trying to anticipate problems and possible solutions, to fix realistic targets in terms of work to be done, transport required and costs.

3.4.5.1 Training assistance

At this stage it may be necessary to provide basic training for some or all of the members of the contact group. This should cover two main aspects, an introduction to the forestry techniques to be applied in the area and guidance on how to organise and manage the resources necessary to carry out the plan. The object is to enable the members of the contact group to take the initiative in preparing a plan with the extension staff serving as guides and advisers. Where possible the planning section of the training might be undertaken at a rural training centre in conjunction with agriculture, livestock, health or community development staffs, so that the procedures and stages of planning are as far as practicable common to several fields of work. Forestry extension should not be regarded as an isolated activity but

as one of several leading to an improvement in community life.

3.4.5.2 Clarifying goals

The object of this stage is to put into simple words what the people feel they would like to do ultimately and what they think they can do as a first step to achieving these goals. The needs assessment should have provided much information on the general needs or wishes of the people. The task now is to get them to identify what they consider to be the most important tasks to tackle first.

The statement of goals may be in such simple forms as:

- to provide sufficient fuelwood for the community;
- to provide more material for house construction;
- to control soil erosion;
- to improve the village environment;
- to provide dry season fodder for the cattle.

Such statements express general ideas and tend to be idealistic but they indicate what the people consider to be pressing problems and needs. In some cases several stages of development will be required before they can be achieved. One or two of these goals may be selected as the basis for a forestry extension programme. Some may even be combined in a single programme. The problem is to focus the attention of the contact group on what is a realistic target in relation to the resources available to them at the time and any additional help they might reasonably expect to get. It is desirable to select initially a goal which is likely to produce some obvious benefits to the community in as short a time as possible to sustain, and if possible increase, the interest of the people in the programme.

3.4.5.3 Setting objectives

The next stage is to establish a series of objectives which will assist the group to achieve the goals selected. If the goal is to provide sufficient fuelwood for the community, then some of the necessary objectives would be:

- to agree on areas which will be set aside for community fuelwood production;
- to devise means to protect the selected areas from damage by livestock, vandalism or premature harvesting;
- to determine the best tree species for fuelwood production;
- to establish a community tree nursery;
- to educate the community members about tree planting and maintenance;
- to organise tree planting and maintenance so each family contributes as fairly as possible.

Somewhat similar steps could be set out for any other type of forestry extension the group wish to undertake. The objectives set out the basic

steps to implement the programme. They may be drawn up in random order during discussion by a small planning group of the contact organisation and arranged later in their logical sequence.

3.4.5.4 Setting tasks

It is necessary to follow this by defining a series of tasks which appear to be necessary to achieve the objectives. The planning group must decide:

- what tasks are required to accomplish each objective;
- when and in what order they should be carried out;
- who should be responsible for carrying out each task;
- what resources are required to achieve good results.

These decisions are incorporated into a simple workplan. They can also be put into the form of a chart and distributed to all concerned to show what should be done, by whom, and at what time, using which resources. As many older people in the community may not be familiar with the use of a chart such as appears in Fig. 3.2, the extension worker may have to devise a diagramatic or pictorial representation appropriate to the community.

3.4.5.5 Review of resources

The plan must list the resources available and those required to achieve the objectives so that arrangements can be made to have these available at the right time or, if necessary, to modify the plans to match the resources available. The resources likely to be required for a limited programme are:

- land;
- labour by the community;
- loans of tools and equipment;
- technical advice;
- funds;
- transport, (e.g. local transport by bicycle or cart);
- supplies (of seeds, fertilisers etc.);
- training;
- any other goods or services which might be required, (e.g. fencing).

This is an area in which careful, common sense decisions are required. There must be a realistic estimate of requirements and no undue optimism about what others may provide to meet the needs. Transport is frequently a problem and promises of assistance by official vehicles may be given which cannot be honoured at the required time. Contingency plans for movement of plants by local means must always be made to avoid the risk of serious hold-ups at planting time.

Figure 3.2

COMMUNITY FORESTRY WORK PLAN

Major Objective	Resources Required	Persons Involved	Persons Responsible	Main Tasks Required	Time Table: Month J F M A M J J A S O N D
To collect seed and plant in nursery 20,000 seedlings for March - May planting.	Collecting baskets Polythene bags Additional water cans Daily allowance for collectors	5 seed collectors Forestry Extension Aide Nursery committee	Forestry Extension Aide (Seed collecting and record keeping) Nursery Manager (Seedling production)	Specify species of tree seedlings required. Seed collecting Record keeping Germination tests Prepare nursery beds. Erect shades Prepare and plant seeds.	---- ---- ---------- ---------- ---- ---------- ---------- ---- ---------- -------- ----------
To train primary school pupils for tree planting and maintenance 1 day in class 2 days in field	Seedlings Tools Manure Water Small chalk board Flip chart	Forestry Extension Aide Nursery Manager Class Teacher	Head Teacher	Select area for planting Plan teaching Arrange suitable time	
To plant 100 seedlings per family this year	Sufficient seedlings of suitable species Transport of seedlings Tools supplied by families Manure Adequate water	Nursery Manager Forestry Extension Aide Forestry Extension Committee Local families	Forestry Committee Chairman Forestry Extension Aide Forestry, Agriculture, Livestock Extension Officers to advise	Advance planning of nursery production Designate location of public planting Co-ordinate planting by family groups Arrange visit of Forestry Extension officer	

3.4.5.6 Planning follow-up action

Too often communities consider planting trees as an end in itself and do not give sufficient attention to maintenance of the area, especially in the first few critical months of growth. This normally coincides with a busy period in the farming year and people may be unwilling to devote time to tending trees at this season. If the trees do not receive sufficient attention at this time they will suffer competition and may require tending for a much longer period. It is often difficult to persuade people to limit initial plantings to an area they can maintain properly, especially if planting is planned to continue each year for 5 or more years, and the burden of maintenance and protection increases progressively each year.

A well thought out plan for maintenance with decisions on who will carry it out and some indication of when it will be done (subject to variations in growth conditions) should be prepared.

3.4.5.7 Sharing costs and benefits

Unless a programme is to be carried out on an individual or family basis it is necessary to give some thought at this early stage to sharing both the costs and benefits. Costs are the primary problem. Those who need the programme most are often least able to contribute financially to it. If direct expenditure cannot be avoided, it should be kept as low as possible and an attempt made to finance it either by a loan or by a very modest cash contribution by all taking part in the scheme. This can sometimes be matched by a contribution either from central or local government, or by assistance from an external aid agency (most probably a NGO). Contributions from external agencies, however, are most likely to be in kind, i.e. tools, plants, fertilisers, or free food supplies to those engaged in the work.

Where a loan has to be sought, this normally involves the formation of a formal organisation approved by government which is entitled to borrow money and commit its members to repay. For small-scale forestry extension work a formality of this sort may be a considerable barrier. The raising of a small sum of money by donations, or by a levy where this is possible, may prove more acceptable. In certain cases days worked may be recorded and credit given for these when produce or revenue is available for disposal. The problems of keeping accurate records of these over a long period of time, however, should not be underestimated, and when work can be done on a community basis administration is much simpler. In any forestry extension programme it is likely that some contributors may die, or move away from the area before the full return from the effort is achieved and some agreement must be reached on how their contribution should be dealt with. If this is only a token amount, it may not be a serious problem. If it is larger those entitled to it must be clearly identified.

When forest produce is available for use it is good to make a small charge for it to avoid waste and to create a source of funds for further development tasks, such as erosion control or water catchment projects. A system of allocation should however be devised to ensure as far as possible that purchasers do not take advantage of low prices by purchasing excessive quantities and then offering them for sale outside the area. This may be done by limiting sales to what persons can carry themselves or on a donkey or bicycle. Consideration must be given to establishing or involving some organisation such as a co-operative and it may be possible at an early stage to link a forestry extension programme to a producer co-operative and take advantage of an existing organisation for sales and profit distribution. It is vital however at this stage to avoid serious controversy about the distribution of possible profits which might create tensions within the

community and affect their willingness to carry out the initial work.

3.4.5.8 Monitoring and evaluating the programme

At this stage it is also necessary to consider some method of monitoring and evaluating the programme to make sure that the objectives are being met within the estimated levels of effort and expenditure. The aim should be to use the knowledge gained at regular intervals to adjust the programme, if necessary, to make the best use of the available resources. The topic of evaluation is dealt with in detail in Chapter 7, but a brief statement of the position may be worthwhile at this stage.

The local people must be very much involved in this process as it is their programme and they must evaluate it in the light of what they set out to achieve and what resources they were able to devote to it. In other words they must decide if they are getting value for their efforts and expenditure. Any professional assistance in evaluating the programme must be carefully planned and be offered by staff experienced in community level programmes. A community level plantation will not necessarily look like a major government plantation and professional staff must judge it by appropriate criteria.

3.4.5.9 Need for technical advice

During this period reliable technical advice may be required on many points. When the forestry extension officer is not able to supply the information required he should ask the district forestry extension officer to provide the information, preferably by attending and discussing the matter with the planning group. In some cases advice may have to be obtained from specialist branches of the forestry authority, e.g. the silvicultural or soils expert or from research organisations. Care must be taken to ensure that the advice is really applicable to community projects in that area. Promises of material assistance from the forestry administration or any other government organisation, such as the supply of seedlings, training programmes or assistance in protection, should be confirmed in writing at the planning stage so there can be no misunderstanding which may endanger the programme at a critical point. The draft plan should also be reviewed by the district extension officer before final decisions on important points are made, to ensure that it conforms to government policy and will continue to attract official support. This will avoid any suggestion of "outside interference" which could be made if the programme is sent back for reconsideration after being completed by the planning group.

3.4.6 Community discussion and approval

The procedure of using a local contact group to create a forestry extension plan in collaboration with extension and other technical staff takes time and patience and may produce a result which is quite different from the original concept. The next stage is to present the plan to the community as a whole to secure its approval and obtain the maximum understanding and co-operation of the people through their local leaders. In many cases an examination of the plan, point by point, will simply confirm what people already know and have agreed. The contents should have been discussed widely during the drafting process and be known to many. Nevertheless, public presentation and discussion is essential to ensure that the plan is not looked on as the private preserve of the contact group invited to draft it.

Changes may be proposed and accepted at this stage but if any major disagreements result it is better to refer the plan back to the planning group for further consideration than to try to make changes in the heat of discussion at a public meeting. It is possible that a community will reject a plan at this stage. A change in the political regime, civil unrest, natural events or a misjudgement of the support given to the leadership by the community, or the standing of the contact group in the community, may lead to a rejection. If this occurs the proposals should be set aside at least for some time as there is no point in trying to impose an unacceptable plan on a community who must themselves carry it out. In this case, the extension staff should make a careful analysis of the causes of the rejection and record this in a report so that such a situation can be avoided in future. It may be that part of this plan is acceptable and it may be possible to proceed with this if it is seen to make up a viable unit. It would not be wise, however, to proceed with the planting section of a plan while rejecting the maintenance commitment to it.

The rejection of a carefully considered plan however is unlikely to happen. During the time of preparation the extension staff and the community should have widened their understanding of each other, and the process of thinking and deciding what is required should have given the people a clearer understanding of their needs and their ability to satisfy them. The extension staff and the people should have established a firm basis of understanding and trust on which to carry out the plan.

4. METHODS OF EXTENSION

4.1 Approach to extension

This section covers some of the approaches, activities, methods and field procedures which extension staff can apply to convert programmes and plans into effective action. Much of the skill of extension and rural development work lies in selecting the right approach, at the right time, to achieve a given objective. This publication attempts to give only a brief outline of some useful extension methods. Much has already been written elsewhere on this topic, and a further publication in this series, titled Forestry Extension Methods, is in the course of preparation which will give much more detailed information on these techniques and suitable training procedures for their use. The function of this section is, therefore, simply to describe briefly some of the steps that should be taken when introducing a forestry extension programme.

Extension staff may have to select, or devise, methods of work appropriate to a very wide range of communities from nomadic herdsmen to semi-urbanised groups living near towns. Their first requirement is to get to know the community with which they are working and then to select or develop a form of approach in keeping with the outlook and sense of values of that community.

Three broad categories of extension work are described according to their objectives.

4.1.1 Providing information and education

This can be achieved by means of:

- awareness campaigns; arousing interest in, or understanding of a topic;
- method demonstrations; learning a particular skill;
- community training courses; simple joint learning processes;
- farmer scholar programmes; courses with a multiplier effect;
- agroforestry research; community members, extension staff and research workers learning together within the community.

4.1.2 Changing attitudes

This can be achieved by means of:

- demonstration trials or results demonstrations; showing what can be done by a particular practice;
- small group meetings; using group action to bring about change;
- mass media; communications for information and education of the general public;
- group media; alternatives to speaking and listening as teaching methods;
- home visits; meetings with individuals and families in their

home surroundings;

- field trips and study tours; seeing how others tackle similar problems;

- community support efforts; encouraging change by helping to remove obstacles to change.

4.1.3 Administering extension programmes: management procedures

The wider aspects of administration of extension programmes are dealt with in Chapters 8 to 11. It is useful, however, at this point to consider some of the aspects of administration which particularly affect the training and work of field staff.

Management at field level requires a knowledge of:

- work plans; fixing tasks, persons responsible, and times for action;

- refresher training; upgrading the skills and confidence of the staff;

- training and visit system (T & V); improving the organisation and enhancing the skills of staff;

- extension teaching programmes; providing systematic training materials with audio-visual support;

- monitoring and evaluation procedures; finding out about, and improving programme performance.

4.2 Information and education

An essential requirement of an extension programme is to have a variety of methods to suit the work in hand. In practice some of these methods may overlap or they may be used more than one at a time. For instance, a village leader's course may be a follow-up to an awareness campaign but the course itself may be part of an overall work plan. The presenter may use an extension teaching programme which includes method and trial demonstrations, small group meetings or discussions. All of these are methods which can be used effectively for particular purposes. Through them people gain information, acquire new knowledge or skills and may, as a result, change their attitudes and practices. The emphasis in this first stage is on learning new skills and how to apply them.

Producing a community forestry extension plan has an educational value in itself, for both the community, and for the extension staff taking part. Different stages in implementing the plan require a range of different skills and technical knowledge. These can be seen by the community and the extension staff as necessary to carry out the purposes of the plan. The five methods described briefly in this section are intended to provide useful information and practical education at a level suited to rural communities. They should, however, be backed-up by some more detailed study of the techniques by extension staff before being put into use.

If a plan is to be developed by a contact group in a community it is usually necessary to conduct an awareness campaign within the community to increase the people's knowledge of the situation the plan hopes to correct. An awareness campaign may combine a number of extension techniques, group

meetings and discussions, poster campaigns or mass publicity in the press and radio where the matter is one of wide general interest. A follow-up to an awareness campaign may be method demonstrations to show to the community the activities publicised in the awareness campaign. These may in turn be followed by short community training courses to provide a fuller understanding of the techniques involved in a particular programme. These may be followed by a farmer scholar approach in which certain people are trained more thoroughly in order to pass on their skills to their neighbours. These individuals will probably themselves employ method demonstrations as a means of passing on the skills they have learned. As the community gains in experience, it may be willing to take part in an agroforestry research project which combines applied research techniques with extension methods to overcome technical obstacles hindering the progress of forestry extension in the plan.

4.2.1 Awareness campaigns

These attempt first to help people to recognise that a problem exists and that something can be done to find a solution to it. They usually cover a wide geographical area, related to the extent of the problem, and they tend to rely heavily on mass media such as posters, newspapers and the radio to inform the public about the problem, or a possible solution to it. Mass publicity, if it is to be effective, must be supported by local action such as, meetings, discussions and demonstrations. Home visits and the distribution of simple pamphlets may play a part but activities at market places, or on any occasion when the community meets is likely to be more effective at this stage. An awareness campaign is unlikely to produce any specific measurable changes in behaviour by the members of a community, but it makes them more receptive to further action which is likely to bring about a change.

- Suitable topics: the creation of community forests; planting trees on roadsides; introducing new species; awareness of erosion problems; introducing new types of cooking stoves.

- Best suited for: reaching many people at the same time; informing and interesting large numbers; promoting discussion of the topic.

- Optimum size of group: if mass media are used, millions of people can be reached; for a community level campaign several hundred to several thousand may be contacted.

- Relative costs: costs vary greatly depending on what media are used; overall cost is usually high but it is often inexpensive when measured on a per-person basis, provided it can be demonstrated to be effective.

- Advantages: gives widespread publicity for any forestry topic; many people are informed within a short time and receive the same message; useful when extension staff are few in number.

- Disadvantages: effort and money can be wasted if the campaign is not followed-up at the local level which requires considerable effort by the staff; the costs of a mass campaign can draw resources away from local activities; extension staff may feel that a major media campaign can replace more sustained efforts at establishing local contacts; coverage by certain means, e.g. newspapers and radio, may not penetrate some areas or groups of people, due to the cost or lack of facilities.

4.2.2 Method demonstrations

These may follow awareness campaigns in areas where sufficient interest has been aroused in a particular topic and where it is relevant to community life. They cannot at this stage necessarily convey very detailed information or develop a high degree of skill, but they can demonstrate in a simple way, to small groups of people, either the techniques involved or in some cases the results of a new procedure.

- Suitable topics: these may be linked to an awareness campaign based on mass media, or to a more local effort. They should concentrate on aspects relevant to the people of the area such as: measuring areas of land for planting; simple methods of seed collection and treatment; basic nursery operations; simple erosion control procedures; planting and tending operations.

- Best suited for: activities which are made up of several steps which can be more easily understood by seeing and doing than by listening and discussing.

- Optimum group size: groups of 20 - 30 people if the procedure is limited to demonstration; 6 - 8 people if they are invited to take an active part in the work.

- Relative cost: relatively inexpensive as the materials are normally in common use and the instructional staff are familiar with the techniques. Handouts may increase the cost but they should be simple and inexpensive at this stage.

- Advantages: seeing is better than hearing and an opportunity to take part in the work heightens interest in the topic. Activities relate the topics of awareness campaigns to local situations. Successful demonstrations increase the confidence of the extension staff and establish better links with the local community.

- Disadvantages: a poorly conducted demonstration can cause confusion and sow doubts in the minds of the audience. The practice available at this time is seldom sufficient to give the participants more than a superficial knowledge of the techniques involved.

4.2.3 Community training courses

These courses may follow at a stage when sufficient interest has been aroused in a new procedure to justify introducing it into the area. They may be held in the locality itself or at a residential training centre convenient to the people concerned. They provide more detailed instruction in the principles and procedures of the new technique and allow adequate time for detailed practice to acquire any necessary skills required for its use in the area. The courses provide valuable opportunities for interaction between trainees and the staff who may gain insights into the values and thought processes of the trainees. The duration can be from one or two days to several weeks in exceptional cases but a course length of one week, or at the most two, should be adopted if regular training courses are required. A course lasting one week usually provides some free time for general discussion or demonstrations in other matters of development relevant to the community such as health care, budgeting and savings or better use of local fuels.

- Useful topics: principles and planning of soil conservation; agroforestry or silvipastural techniques; establishment and management of community woodlots; exploitation and marketing of community produce; more efficient use of wood in improved stoves; preparing proposals for funding projects.

- Best suited for: members of the community who are motivated to learn and are likely to be able to apply the knowledge gained. Suited to topics requiring practical experience or visits to areas showing the results of recommended treatments.

- Optimum group size: 6 - 8 persons where there is a high content of practical activities; 20 - 30 where trainees require less individual attention. A larger class can be sub-divided into several groups of 6 - 8 persons for practical training if sufficient instructors are available.

- Relative cost: relatively expensive if conducted in a residential centre as costs of travel, accommodation and possibly loss of earnings, have to be added to the basic cost of the instruction. Lower direct costs if the trainees continue to live at home, but the staff are less likely to be able to use evening sessions for teaching in this case. Group training based on home accommodation is less expensive than training based on family contacts and home visits.

- Advantages: trainees are often stimulated by a chance to travel to a new environment. They may gain prestige from what is regarded as formal training. They are less likely to be distracted by domestic matters when out of their home environment. Attitudes may change more quickly following demonstrations and discussions in well planned situations. An opportunity to participate in activities heightens interest and speeds up learning.

- Disadvantages: family commitments may make it difficult for people (especially women) to be absent from home for several days, particularly at certain seasons. Problems may arise in teaching trainees of different levels of education. A few short courses at intervals may be more effective than one long course but they are expensive and may be disruptive of normal life.

It is a requirement of this system that staff must be experienced in teaching adults as well as being technically skilled. The contents of the course should have a strong interest and be of direct application to the people in the area.

4.2.4 Farmer scholar programmes

In this procedure the community selects one representative to be taught a single subject at a residential training centre. The trainee is taught, both the specific skill and the procedure for teaching this to five others, called demonstration workers. There is a significant multiplier effect when each demonstration worker in turn teaches five others in his home area. While emphasis is given to transferring a particular skill, the community is able to build up a corps of farmer scholars in a variety of different skills. Over a period of time the level of ability within the whole community is raised. Considerable care must be taken in selecting the initial trainees and in verifying that the skill or technique is not distorted as it proceeds

down the line.

- Useful topics: collecting seeds and seedlings of indigenous trees; intercropping trees and agricultural crops; pruning and thinning techniques; selecting trees for erosion prevention; controlling livestock grazing in forest areas.

- Best suited for: highly motivated individuals able to learn in a small group who are then willing to teach others in their own community free of charge. Conditions are best when people feel a strong need for technical information or assistance, but where a shortage of ordinary extension staff prevents them getting this within a reasonable time.

- Optimum group size: where there is a high content of practical work groups of 6 - 8 members, though a training organisation may be able to accept several groups simultaneously. For subsequent training carried out by the farmer scholars and demonstration workers the optimum group is 5.

- Relative cost: this is a cost effective method since the major expenses are in the initial training of the farmer scholars who then pass on their knowledge and skills free of charge. In time the demand from trained people for additional advice or skills may, however, cause an increased demand for extension services in general.

- Advantages: rapid increases in skill can be achieved for a large number of people without the need for a large permanent training staff. Local people teaching in their community provides good involvement in development activities and decision making. The training system can be adjusted to meet local requirements: there may be better continuity of local expertise compared with assistance from outside extension staff.

- Disadvantages: personal gain may take precedence over willingness to teach others. The scarcity of certain materials may limit the adoption of the skills learned on a wide basis. The initial trainees must be selected for their ability to learn, their willingness to teach, and for the respect in which they are held by the community, and not for other considerations such as political acceptability or local connections.

It is a requirement of this system that teaching must be carried out thoroughly at all levels and must be carefully monitored to avoid any faulty techniques being adopted.

4.2.5 Agroforestry research

This method combines research with extension at the community level to make research findings more adaptable and useful to local production. The people are first involved through surveys which identify existing agroforestry patterns and are then consulted about problems in the system. Some of these problems are then chosen for research by scientists. Selected people in the community carry out some of the trials under their guidance and generally participate in the research programme. This may involve testing different tree species with combinations of traditionally grown foods. Under these conditions the research results reflect a realistic local assessment of one or more research problems, and avoid solutions which are impracticable for

local people to apply.

In the process other data may be collected. Economic factors, extension problems, traditional beliefs and attitudes towards new ideas can all be studied jointly with the technical issues, in contrast to work carried out on research station plots which cannot reflect village constraints and conditions. The members of the community gain experience by participating in a demonstration trial and gain access to technical advice which might otherwise be difficult to obtain. For the extension staff, there are often more resources available for extension, and more attention is paid to the problems faced in carrying out local programmes.

- Suitable topics: introduction of new species; tree and crop combinations; food and fodder production; management of forest grazing; erosion control techniques.

- Best suited for: communities with an interest in new ideas and in progressive thinking; research topics which have a direct application and usefulness to local people; easily accessible locations where demonstration trials have been successful in the past.

- Relative cost: This is normally high but it can often be covered by special funds or grants from outside donors. A team of natural and social scientists from a research organisation supported by resident field staff is required. Farmers taking part should be paid for their assistance when there is a risk of failure of an experiment with personal loss to them.

- Advantages: There is greater realism in the location of the experiments but somewhat less control over their execution. Research and the spread of knowledge take place simultaneously. The researchers and the community learn from each other.

- Disadvantages: Additional costs may be involved in carrying out research in unusual circumstances. When experiments produce "no significant difference" this can be difficult for people to understand and it may harm the credibility of researchers and extension workers for future work in the area. The method is not suitable for very unsophisticated people.

4.3 Changing attitudes

The survival of many communities depends on their ability to deal with droughts, floods, diseases and a host of other natural events which cannot be predicted but which are always a threat to them. There are also man-made obstacles to overcome or adapt to, such as problems of land tenure, superstition, factions in the community and corruption. It is presumptuous to ask people who have very limited resources to change from an established practice to another which involves a risk to them and may require more work, until some very real benefits can be shown. People cannot be blamed if they are sceptical about some of the programmes suggested to them.

Foresters may often be able to point to historical evidence to demonstrate that the return of the environment to a state it was in earlier will improve the chances of survival of the community. People will often agree with well prepared arguments that planting trees will bring about improvements. There should, however, be more justification for trying to persuade people to follow a particular course of action than to claim "it is government policy". The following methods are used by extension workers to

persuade, convince and change attitudes. They are orientated towards a positive outlook, based on the experience that people are more likely to adopt new ways of doing things if they see real benefits for themselves and for their families.

4.3.1 Demonstration trials and results demonstrations

Trials and demonstrations are set up by extension workers to show what happens when new ideas are put into practice. This method has been a main feature of agricultural extension programmes for many years and it is easily adapted to forestry. The comparison between the "old" and the "new" methods can take many forms. Sometimes persons can be persuaded to conduct a demonstration on a small part of their own land, in a way proving to themselves that the advice provided is sound. If they do this they also benefit from the educational effect of doing the work themselves. In other cases, particularly in forestry, the demonstration plots are the work of the extension service. This is necessary to ensure that all the right things are done at the right time in order to maximise the possibility of success and to contrast with present methods. The goal is to convince the community that the demonstration results are better than the conventional results. The demonstration must however be realistic if it is to convince the people.

- Suitable topics: growth rates for new tree species; effects of the use of fertilisers, thinning procedures; improved terracing methods, advantages of windbreaks.

- Best suited for: introducing new ideas which show a marked contrast with conventional practices. The best setting is near a village where procedures can be easily observed throughout the length of the demonstration. Visits by adjoining community groups will multiply the effect when it is not possible to have demonstrations in all areas.

- Optimum group size: individuals and small groups can benefit from the demonstration.

- Relative cost: this is low if the work is in line with conventional forestry or agroforestry techniques. Transport costs can also be low if the area is easily accessible or being visited regularly by staff for other purposes.

- Advantages: it provides a practical example of what has been advocated by the mass media during an awareness campaign; it provides a local example of the suggested procedure.

- Disadvantages: demonstration trials must show good results otherwise they will work against the goal of showing a better way. Forestry demonstrations may take a long time to produce convincing results. More land and more long term co-operation by the community are necessary in forestry than in agricultural demonstrations.

4.3.2 Small group meetings

Local meetings are an excellent means for an extension worker to explain carefully what a forestry plan involves, indicate the necessary skills required and generally begin to implement an action plan. People can discuss and decide for themselves in small groups how they want to proceed. When they reach a consensus the leaders can then assure the extension staff

that the people are ready to take action. Group decisions have a strong effect on shaping individual attitudes. Through existing voluntary groups, or "ad hoc" groups the extension staff can reach many people, understand their method of thinking and provide appropriate assistance to the community.

- Suitable topics: community projects such as tree planting days; control of livestock grazing; drafting of local forestry regulations.

- Best suited for: shaping the ideas and behaviour of individual members of a group by the influence of others. This is more effective than attempting to impose ideas, regulations or work projects by officials. Two-way communication is encouraged and made real if there is an appropriate positive response by the government. Existing groups are a good focus for organising field trips, demonstrations and training.

- Optimum group size: an "ad hoc" committee might number 5 to 20 members; a permanent organisation such as a religious group could have up to 500 members of which 250 might normally attend meetings. A group of 5 to 20 persons is more likely to be cohesive and to be suitable for accomplishing planning tasks and leading community efforts.

- Relative cost: such groups can be more or less self supporting depending on their activities and aims. Field trips, social events, demonstrations, and sending members for training will incur costs which are usually met by the group (but which may be underwritten by the extension staff if there is money available in their budget for this purpose).

- Advantages: the creation of small groups to oversee specific development activities is an important means of widening participation and relieving the extension staff of many tasks which are best carried out by the local people in any case. Permanent groups have the sustaining power needed for long term community forestry projects.

- Disadvantages: groups include, but also exclude, certain people. Extension staff serving in areas with tribal factions, religious divisions, rival political groups and other divisive factors which prevent unified action, cannot easily use this method without the risk of making enemies. There is also the danger that some groups may be seen as the tool of a particular person or as a rubber stamp for government wishes, and not as representative of the views of the community as a whole.

4.3.3 Mass media

All the communication channels which can reach a large number of people in a short time, with the minimum distortion of the message, are termed mass media. A president's radio address to the nation gives people in one part of the country the same message as in any other part. Newspapers, television, films, posters etc. are all orientated towards a large total audience, though sometimes in numerous small groups. They usually carry a motivational message. The media are often used for information and education, but more frequently their main use by governments is to persuade people to adopt a particular point of view. The media are in general designed to entertain in order to attract and hold people's attention while a more serious message is

put over to them.

- Suitable topics: posters advocating the protection of newly planted trees; radio programmes on the benefits of beekeeping; cinema films showing before and after effects of village reforestation.

- Best suited for: the creation of a climate of opinion in favour of a particular course of action, which can be followed-up later by an educational phase.

- Optimum group size: large numbers are required to receive the information in order to justify the expense of preparation and distribution of the message.

- Relative cost: generally expensive to prepare and transmit, but cheap in terms of the number of people who can receive the message.

- Advantages: mass media attract people's attention when well designed and presented. They provide large coverage of the population if well distributed. In the case of radio and television, messages can be quickly produced and broadcast. Mass media which do not rely on print, can provide information to illiterate people.

- Disadvantages: the principal one is the high cost of preparing and distributing information in this way. Foreign exchange obstacles limit the importation of newsprint, filmstock, radios and television sets and so limit the effectiveness of the method. If the message is poorly presented it can be ignored by a bored and distrusting public.

4.3.4 Group media

This activity refers to material usually presented before groups, such as 35mm slide and filmstrip shows, folk dramas, puppet shows and field days. Cinema shows which are properly presented and include discussion of the films shown also fit into this category. In some cases the material is used primarily for arousing interest or for providing information. In other cases the main purpose may be to persuade people, using methods which are not as "personal" as the small group meeting without such aids. For example, a folk drama staged in a village setting can deal directly with sensitive issues which might not be brought to the surface in a face-to-face meeting. Unlike mass media methods, group media are usually under the direction and leadership of forestry extension staff so that feedback in the form of discussion can involve the group and resolve confusion or misinterpretation of the main message.

- Suitable topics: land tenure disputes, (folk drama); the role of women, (puppet show); how to start a forest nursery, (filmstrip or 35mm slides); use of improved stoves; use of better building methods, (field day).

- Best suited for: introducing or convincing people about a particular subject under the guidance of a group leader; topics where feedback and discussion are essential to full understanding.

- Optimum group size: up to 80 people depending on the viewing and listening conditions available. Where more active participation of the audience is needed, 10 to 30 may be the optimum size. Field days can deal with many more people if they circulate as small groups round a large number of displays.

- Relative cost: this can range from the small number of items used by a drama group to a considerable amount for staging a field day. The rental or transport of borrowed equipment may be expensive by local standards.

- Advantages: the emotional impact can be strong; entertainment with a message usually has a lasting effect and makes any necessary follow-up easier; group media can often reflect local problems much better than mass media; issues may be raised which would not otherwise be dealt with; the participation by the community can be increased.

- Disadvantages: for highly controversial issues, the message may be too forcefully expressed. Group media attract children whose presence in large numbers can be disruptive. Weak leadership of the show can lessen the effect of a good performance or presentation.

4.3.5 Home visits by extension staff

Home visits are one of the basic methods of working with people. Making a survey, trying to convince people of the value of a new practice, showing how to use a new tool, and a number of similar activities contribute to a person's understanding of the extension service's task, and develop some appreciation of the person's circumstances on the part of the extension staff. Home or small group visits by extension staff may be casual or rigidly scheduled (see T & V system below), but they will remain a basic method for most routine extension work.

- Suitable topics: showing the safe use of pesticides; showing the best way to prune trees; taking soil samples for analysis and fertiliser recommendations.

- Optimum group size: the size of families and family groups varies greatly. The home visit might well develop into a small group technique in areas with extended households. Within reason the number is not very important as long as there is cohesion within the group.

- Relative cost: some detailed consideration of this point is needed. It is unlikely that on average a member of the community extension staff will make more than two home visits per day. These have usually to be adjusted to times when the family is free of farming or domestic duties. On the basis of a five day week, using three weeks per month, and eleven months per year, this amounts to 330 home visits (or more realistically 300). This means about 38 families can be visited each year if the staff member returns an average of 8 times to each family. The salary of the person and the direct and indirect support costs can be calculated and then divided by the maximum number of families which can be visited each year to determine the average cost per family. This indicates that home visits are a costly activity compared to some other methods discussed here. The effectiveness of the visits

varies, depending on the ability and dedication of the extension staff.

- Advantages: the greatest value in home visits is the direct contact between the persons visited and the staff member. This can create true two-way communication and a mutual understanding of forestry issues both from the official and personal viewpoint. The forestry extension staff should have the freedom to convey the peoples' views on important issues to their senior officers.

- Disadvantages: it is difficult for extension staff actually to carry out all the tasks which are part of their job, e.g. conduct home visits, arrange training courses, write reports, encourage development committees, take part in community work efforts and attend meetings at headquarters. Often it is the more physically demanding activities such as home visits, which may involve much travel, which are skipped in favour of easier duties. Apart from the high cost, home visits do not have any particular disadvantages except for the demands placed on the extension staff. A young and inexperienced staff member may shy away from home visits to people who apparently know more than he or she does. This is a difficult barrier to break through.

4.3.6 Field trips and tours

These activities provide people with the chance to see particular practices in action in another area or at a demonstration site. If the example is seen in the setting of another village, the visitors can discuss the realistic advantages, disadvantages, costs and difficulties with the villagers. If the people then agree to try a new technique themselves, they will have had a practical assessment of what is required. On the other hand, they may choose not to adopt the practice on the basis of what they have seen on the visit. While this may run counter to the intentions of the extension staff, a negative decision may prevent difficulties in the future which could be foreseen by the people but not by the staff. In any case a field visit should provide the basis of much lively discussion focused on relevant issues.

- Suitable topics: long term demonstrations are particularly suited for visits, e.g. terracing and tree planting practices for erosion control; woodlots for fuelwood; various stages of intercropping of trees and food crops; successful tree nursery management; results of a comprehensive forest management plan; the use of improved stoves.

- Best suited for: communities undecided about adopting a new practice; those who have reached a decision, but want to know how to proceed, based on the experience of similar groups; communities which have adopted a practice but would benefit from encouragement from visiting an existing well established effort elsewhere.

- Optimum group size: a group of 5 to 25 is suitable for this method. This is often determined by the capacity of the vehicle available for the trip..

- Relative cost: hiring a vehicle, providing food and lodgings, if required, and making advance arrangements are necessary

costs. These may involve major expenses compared with other programme activities.

- Advantages: the people have a glimpse into the future by seeing what others have done and the possible results of what they are contemplating doing; mistakes can be avoided based on prior experience. Usually the group meet people of their own kind rather than researchers or officials. One successful programme can encourage many communities who might otherwise be reluctant to try the technique.

- Disadvantages: unless there is careful preparation, organisation and follow-up, the field trip may be seen simply as a day or two away from routine work, with little or no effect on attitudes or learning. Worse still, a field trip may produce an effect opposite to that intended, if unexpected facts emerge from it. For example, extension staff newly assigned to an area may take a party from one community to another which has established a successful co-operative fuelwood plantation and sawmill. During the course of the visit it may be revealed that the co-operative was actually organised by a landlord, who received generous government assistance, (but only through establishing a false co-operative society). Everyone in both communities may know the facts but be too polite to tell the staff member. Whether the results are negative or positive, the extension staff must be alert to making the field trip a useful learning experience for the participants.

4.3.7 Community support efforts

These are services provided by the extension staff to strengthen a community's ability to achieve its objectives. This extension technique is sometimes called "intervention" because the trained extension staff step in to smooth out logistic or bureaucratic obstacles which are blocking the progress of the programme. Such services include arranging transport, obtaining places in training courses, helping to prepare proposals for funding projects, or contacting a research worker about a particular technical problem. These activities are more easily done by those familiar with bureuacratic paths than by the people themselves, who are often intimidated by officialdom, red tape and the possibility of requests for irregular payments. With proper training, forestry extension assistants can take a leading role in supporting community efforts. Too much community support given by the extension staff can, however, defeat the overall goal of developing a community's self-reliance and ability to use its own resources.

- Suitable topics: requesting district authorities to co-ordinate efforts of agricultural, livestock, and forestry extension workers; referring research problems to forestry research staff for attention; assisting in the selection of volunteer extension assistants from an area to attend a course; giving advice on a funding proposal or credit application for a community project; arranging transport for a fertiliser shipment to the area.

- Best suited for: communities inexperienced in conducting business with outside agencies; newly formed communities with little traditional leadership, (e.g. resettlement camps); occasions when transport is critical to the successful completion of a community project; when serious losses of

plants would occur if no intervention took place.

- Optimum group size: not relevant in this case.

- Relative cost: the cost of providing such services to the community vary widely, from the basic cost of the time of the extension staff carrying out the work, to cash subsidies to projects extending over a number of years. The level of support activity must be decided early and whether to provide it or not is often as much a philosophical consideration as a financial one.

- Advantages: confidence in the extension programme is built up; paperwork impediments to villagers can be dealt with more easily by civil servants when approached by knowledgeable extension staff; funds can sometimes be found for small-scale needs, the lack of which are blocking progress; loss of resources may be averted.

- Disadvantages: over-dependence on the extension programme results if the staff perform tasks more suitably left to the community. People may begin to take support services for granted. Over-optimistic promises made by staff but unfulfilled can lead to problems of credibility.

4.4 Extension administration techniques

The methods described above are aimed at helping the community improve their ability to plan, make decisions, and execute forestry extension activities. This section focuses on the extension staff using several techniques to support and improve their performance in the field. The problems of overall administration of an extension programme are more fully dealt with in Chapter 8 onwards.

4.4.1 Work plans and calendars of work

This has already been dealt with briefly in Section 3.4.5.4 and Fig. 3.2 but it justifies further consideration at this point. Such organisational aids are intended to indicate how, when, and by whom an extension programme is carried out. The work plan is developed by the extension staff in consultation with their supervisor and the community. The information is specific and reflects a realistic assessment of how the objectives are to be met, when activities will take place, where events will be held, and who will be responsible. Specific outputs are anticipated and listed. Advance preparations required are noted. The plan may be developed in detail for a month at a time, with an outline plan for three months or a year. This is the extension staff member's personal work plan, based on the several community plans on which he or she is working at that time.

- Examples: typical headings for a work plan include; date, time, activity, objectives, preparations required, responsible people, and follow-up needed.

- Best suited for: extension staff who are in a position to control and anticipate programme activities. Long term work plans are often not possible for advisory extension staff who are responding to requests from the community, often on short notice.

- Optimum size group: not relevant in this case.

- Relative cost: this costs only the value of routine staff time used, but it may save money and time by planning travel, meetings and appointments for the optimum use of these resources.

- Advantages: the work plan provides guidance for the work ahead and a review of what was done, or not done, in the days previously. It can serve as a record of what was planned against what was actually achieved.

- Disadvantages: the work plan is not useful when the extension staff member has little control over what happens during the working week, (i.e. when he or she cannot determine what the immediate superior will be expecting during the week). The person may not be able to respond adequately to unexpected but important events because they are not included in the calendar of work for that month.

4.4.2 Refresher training

Courses lasting a few hours to a few weeks increase the skills, ability, and confidence of the extension staff. Short training courses of one day to one week on a specific topic held frequently are more beneficial than irregularly scheduled, general courses lasting several weeks. This is a valuable way for headquarters staff to communicate with the field staff and vice versa, if properly organised.

- Examples: conducting evaluation workshops; rural credit proposal preparations; observation principals; estimating firewood consumption; changes in forestry management policy.

- Best suited for: new staff with little knowledge of these activities; older staff requiring familiarisation with new policies and updated technical information; boosting sagging morale and sense of professional conduct.

- Relative cost: if the training is residential, costs may be high. If held at headquarters at times when staff would normally be meeting there, the costs are minimal.

- Advantages: this increases the skills and professionalism of the staff; provides opportunities to learn about field problems associated with the work; helps staff morale; keeps trainers (often senior staff) alert to the knowledge and skills needed by staff in the field.

- Disadvantages: the topics covered may reflect the headquarters' staff thinking rather than the actual needs of the field staff; poor refresher training can reinforce poor extension approaches in the field.

4.4.3 Training and visit system (T & V)

The T & V system is orientated to providing timely technical advice and skills to small groups of contact workers who, in turn, introduce the advice and skills to the wider community. T & V is organised with a direct chain of command from headquarters through various levels to the field extension staff. The staff operate on a rigid schedule, usually with a two-week cycle of farmer visits and periods of in-service training from senior staff. Day-to-day work schedules are kept; there is close contact between the community

staff, the officer-in-charge and the subject matter specialists. The system was originally devised to deliver technical services in agriculture, but it is mentioned because it lays down a fixed schedule of work and provides strong organisational control of the extension staff who can see that they are not being ignored by a distant headquarters.

Bearing in mind the problems of weather and travel in some areas and the demands of the farming calendar and from politicians and others in authority, and the traditional demands of family life, adhering to such a rigid programme may be somewhat difficult.

- Examples: topics for T & V might include introducing ornamental or fodder trees to an area; terracing methods; irrigation procedures.

- Best suited for: areas where communities are readily accessible; people are in need of technical advice, and there are sufficient subject matter and extension officers available for training and advice to have regular contact with the community. It is also suitable where the problems are clearly identified and have a strong technical component.

- Optimum group size: the number of contact farmer groups is kept at about 8, with 10 to 15 farmers in each group. Training sessions held fortnightly may have up to 40 extension staff.

- Relative cost: running the T & V system is expensive since transport, additional subject matter specialists and administrative staff are more numerous and active than in conventional organisations. However, it is assumed that the increased productivity of the farmers as a result of the system will justify the increased costs.

- Advantages: strong organisational control is maintained; extension staff are accountable for their activities on a day-to-day basis; contact farmers receive steady support from the extension staff; extension officers and assistants receive more attention by senior staff than under other management procedures.

- Disadvantages: The system assumes staff are located in reasonable proximity to headquarters for weekly training sessions; emphasis is usually placed on technical services rather than on the broader social and community issues often linked with overall rural development.

4.4.4 Extension training packages

These provide both training and extension staff with systematically prepared materials for planning, conducting and following up extension activities, particularly for staff and worker training courses. The emphasis is normally on a single topic or concept. Each package usually contains technical information, a guide to using the materials, suggested activities such as practical demonstrations and audiovisual support materials (including handouts designed for the target audience). Materials for publicity and developing awareness, such as posters, radio programmes and films, are sometimes included in the package. Training packages represent the realistic view that extension staff in the field normally have neither the facilities nor the time to plan and produce good quality materials. The trend is

towards producing adaptable comprehensive packages rather than a single support item such as a film, which may be too broad and general in its coverage and not clearly relevant to the area. The package contents must be orientated to the ecological and the social systems for a particular zone within a country, recognising the differences which exist in many countries. The package should not be just an assortment of aids but a comprehensive way of presenting a complex topic in as clear a manner as possible.

- Examples: basic agroforestry principles; taking care of tree seedlings; selecting appropriate tree species; forestry extension methods; developing a forestry management plan.

- Best suited for: topics which involve a complex process or technique, and therefore benefit from an assortment of technical and teaching support materials; training sessions which extend for one full day or more.

- Optimum group size: the audiovisual materials (flip charts, posters, filmstrips and slides) are often orientated to groups of up to 30 persons, for use in classroom or community centre surroundings.

- Relative cost: a comprehensive package is initially expensive to produce because of both labour and materials costs. The materials, however, often have a long life, are reprintable, and can support many courses over a period of time. This makes the final per capita cost low.

- Advantages: packages provide standardised information, in writing, to training officers, extension staff, and the community. Audiovisual materials can be used to train illiterates who would otherwise have to rely on verbal learning alone. Training course organisation is made easier by having a co-ordinated programme, with reference and support materials.

- Disadvantages: the initial costs are high; skilled manpower is required for producing and introducing the materials. New information or policies can make existing packages obsolete unless they were originally designed to allow for future changes. If badly designed, the packages may not be appropriate for the target audiences. The design factors which must be considered include the level of literacy, pictorial understanding, local customs and standard of education of the audience.

4.4.5 Programme monitoring and evaluation

The need for monitoring programmes has already been mentioned briefly in Chapter 3 and is discussed again in detail in Chapter 7. It is a matter of such importance, however, that it is worth considering the following points at this stage. Monitoring activities are used to find out how well an extension programme is performing and then make any necessary adjustments. The basic evaluation question is: is the programme meeting its goal and objectives? Qualitative and quantitative measures are used to answer this and other critical questions. By monitoring progress, especially the timing and costs of activities, extension staff can make adjustments before serious difficulties cause the programme to stumble.

"Programme and project evaluation" must be distinguished from "personnel evaluation". If this distinction is unclear, extension staff may feel that their standing is directly related to their monthly reports on the status of the programme. In ths case reporting becomes distorted; poor programme performance is hidden in inaccurate figures and accounts of community activities may be exaggerated. In an ambiguous evaluation situation, staff will do whatever they consider necessary to maintain their promotion prospects, choice of postings, and opportunities for advanced training.

These questions are discussed in greater detail in Chapter 7, with considerable emphasis on community participation. It is sufficient to state here that this important task must be carried out with great care or the conclusions reached may be totally at variance with the facts.

4.5 Selecting useful techniques: the right method at the right time

The extension techniques selected for assisting people to meet a specific objective must be carefully chosen. A course run at a community training centre should provide the right content at the right time to people already receptive to the ideas. If most of those attending are sceptical of the whole programme, they will hardly be convinced by a short course on how to carry out work or improve skills they are not interested in applying.

It is the extension staff's task to examine carefully the forestry work plan which has emerged from the community. The staff must then decide what activities can be organised to assist in raising the community's ability, first to receive new ideas and resources, and second to carry out the planned objectives successfully.

4.5.1 Steps in deciding which activities are appropriate

Broad distinctions have been made between extension activities which educate (method demonstrations, farmer scholar programmes), convince (demonstration trials, home visits) and strengthen the extension effort itself (work plan, refresher training). There are finer distinctions which must be made in matching planning objectives and extension activities. The selection of appropriate extension activities comes from asking questions such as the following.

4.5.1.1 For a given objective, what do the people need to know to be successful? (e.g. livestock keepers who have decided to plant trees).

- What do they know already about tree planting?
- Are any mistaken ideas or information being held by the people?
- What practical skills beyond "knowing" are required?
- How can this knowledge best be conveyed? To a group, or to an individual?
- What inputs are required? Are they available?

4.5.1.2 What attitudes are held which may need changing to accomplish the given objective? (e.g. the people do not believe the forestry extension staff will assist them in their efforts).

- What are the basis for the attitudes?
- How strongly held are the attitudes?
- Do the attitudes inhibit meeting other objectives also?
- Is credible information alone enough to change the attitudes?

4.5.1.3 What changes are required on the part of extension staff to carry out their assigned programme more effectively?

- Are these changes related to technical information, ways of dealing with the people, or both?
- What administrative changes are required to strengthen the extension programme?
- What kind of technical and administrative support is required to effect these changes?

One of the most important skills extension staff require is the ability to judge which extension activity will best advance programme planning objectives. The costs, the experience of the forestry extension worker and appropriate timing to match the needs of the villagers are all factors which must be carefully considered.

5. COMMUNICATION FOR EXTENSION

5.1 Importance of effective communication

The success of forestry extension depends very much on effective two-way communication between the people and the extension staff, and vice versa. If the people can communicate to foresters their knowledge, needs and feelings, and foresters can in turn communicate their knowledge, attitudes and feeling about trees to the people, there will be a sound basis for the preservation and re-establishment of forest areas throughout the world. The lack of effective communication in the past suggests that many important opportunities may have been lost to maintain trees in vital areas. Improved communication may be one of the most vital factors in the proper use of limited resources to develop an effective programme of forestry extension.

Communication problems at the community level can often be anticipated and minimised before they become serious obstacles. The term Development Support Communication (DSC) is used to describe the systematic planning and use of the communication elements in development programmes. Some of the important factors are:

- communication channels between headquarters and the field;
- production and use of media for awareness and education;
- production of teaching materials for training courses;
- techniques for making research data useful to the people;
- analysis of communication patterns across the boundaries of class, education and socio-economic levels.

It is neither possible nor desirable to give a course in the elements of DSC methodology and practice in this publication. The object, however, is to enable readers, who are not yet fully aware of the importance of communication factors, to understand how the application of DSC approaches to extension programmes can lead to better communication and the better use of existing resources.

5.2 Understanding problems

A simple word such as "tree" may have different meanings, or rather different values, to different people. Some may think of it in the biological sense of a complex living organism which can contribute greatly to the welfare of people. Others may look on it purely as a source of some immediate need, such as firewood, while others may regard it in a completely negative sense as a barrier to the extension of a farm. What people understand even by such a simple word as "tree" depends on the person questioned. "People" are essentially a collection of individuals and their individual differences must be taken into account in working with them to improve their way of life. As far as practicable, extension programmes must consider cultural differences, people's values, their perception of different things and their experiences in their dealings with officials and other people. Economic planners have often in the past recognised the effect of climate, soils, and altitudes on trees, but they have tended to ignore people and the effect their views or values could have on a development programme. Extension staff must learn to recognise the differences that exist between people and take these into account in their dealings with them.

Those who are anxious to improve the means of communication try to find ways in which information can best be passed from person to person, person to group, group to group, trainer to trainee and vice versa. This means trying to identify clearly, and describe accurately, the target audience for any communication. Questions which help to describe a target audience include:

- what do the people already know about the topic;
- what are the values they most respect;
- how are they used to getting new information;
- what is the range of formal education within the group;
- what has been their past experience with the topic?

The answers will give a different profile for each group. It then must be decided how best to communicate with each group on the basis of its own distinctive profile.

Extension staff who hope to communicate effectively must have agile minds. They have at various times to try to see a problem through the eyes of a politician, senior administrator, researcher, field extension worker, villager (man, woman, or child), forestry law enforcement officer or official of a donor agency. By trying to understand other people's points of view, at least to some extent, extension staff are better able to communicate their own points of view, and help people to communicate with each other.

A selection of phrases commonly found in official reports suggests that the problem of poor communication exists in many rural development activities.

....communications breakdown....

....ignorance of the farmers....

....training was wasted....

....villagers did not turn up....

....the policy was not correctly interpreted by field staff....

....headquarters staff were not informed...

All these phrases, and many like them in common use, suggest a waste of scarce human resources because people were not aware of what was going on. The emergence of development support communication as a distinct element in an extension programme is an attempt to avoid the waste of resources at all levels of a programme. Much of the DSC effort is concerned with how people get and use information.

5.3 Information for survival

Information learned and built up over the centuries has allowed some people greater control over their environment than others. In recent years people have made machines which have allowed others to live and work in space or in the depths of the seas. People living in harsh desert conditions have acquired information over the centuries on how to survive within an existing environment rather than how to manipulate it to suit their interests.

One common element which has allowed astronauts to survive in outer space and bushmen to survive in desert areas is the correct interpretation of information. This information comes from many sources, including other people. How people learn, why they learn, and what they learn are basic issues in human communication. They are also critical issues in the success or failure of any forestry extension programmes.

5.3.1 How people learn

Stated simply, people learn best by doing things, or at least by having some involvement in an activity. They learn less effectively by being told how to do something. This is borne out by many old sayings such as "experience is the best teacher". In between the stages of hearing and successful accomplishment are many of the extension activities listed in the previous chapter. For example, a method demonstration shows people how to do something. It is even more effective when it allows people actually to do the thing for themselves. Trainers therefore try to mix a number of methods of learning in planning training courses. A filmstrip (still picture sequence) or a cinema film puts visual material in front of people in a sequential manner in a short period of time. Both time and space are compressed by these media to introduce a topic, promote discussion and motivate people to want to do something.

As stressed before, practical tasks are included in extension activities so that people may actually try out things which are thought to be of use to them. Mistakes can be pointed out by others present or by the extension staff, if necessary. The reasons for doing something become more understandable when a person discovers the reason for it, rather than simply accepting a verbal description. The trainer, can in turn discover better ways of training people by observing how they actually do things. All these learning activities must be carefully thought out. A film or a filmstrip can contain material which is foreign to an audience's experience, causing them confusion. Many modern film makers are so concerned with artistic effects, recognisable only to very sophisticated audiences, that their films are barely understandable to rural people. The film then serves no purpose as a visual aid. Familiar scenes without too much embellishment, shown at a leisurely pace, prove to be the best method for clear pictorial communication for rural audiences. The film maker must view his film through the eyes of the real audience not the judges at a film festival!

Literacy is a vital feature in assisting people to learn something new. In essence, reading is interpreting symbols, and is a way of acquiring knowledge not otherwise available by traditional oral communication. High literacy levels, however, cannot always be taken for granted in rural communities, so the shortcut of learning through using printed materials may not exist for many of the rural poor. This often leads extension staff to use the only teaching technique with which they are familiar, lecturing.

One solution is group discussion of topics, with the leader assisting people in understanding new information based on existing knowledge. For illiterate people this is a reasonable means of learning, especially if demonstrations or participation can be included. The value of using actual objects to make the learning specific and real cannot be overstressed. All too often, however, instructors slip into the easier and seemingly more efficient method of simply telling people what has been deemed important for them to know, at the expense of proper learning. Lecturing may appear to be efficient for the trainer or the extension worker but it is ineffective unless combined with practical activities which give lectures meaning.

5.3.2 Why people learn

People learn new things because they feel a need to. This desire is called motivation and comes from a wide variety of sources. Some are basic needs for survival. People may want to learn how to plant trees because firewood is scarce and is essential for cooking food. Other motivating sources are related to how people see themselves in comparison with others. Many sources of motivation are obscure to outsiders: religious beliefs, previous experiences, community pressures, a vision of the future. When people are receptive and seeking a solution to a problem, new information can trigger high motivation. From heightened motivation, people try to learn more about a topic. This seeking out of more information by the people represents one of the main challenges to the DSC component of extension programmes.

One powerful reason why people want to learn more things is quite simply to earn more money, but relying heavily on this motivation for extension purposes may cause problems. Some people will earn money up to a certain amount and then decide that the amount is sufficient. Often there is community pressure against being too ambitious or too successful. With the diminished desire for money, the desire to learn is also diminished. When earning money is the only motivator, the extension programme's objectives may be only partly achieved, or indeed fail after an initial success. In some cases an extension programme may aim at a goal which cannot easily be measured in money, e.g. better water supplies, and a different type of motivation must be sought.

Often people's pride will be a motivating factor for learning new things. They do not want to be seen as backward or against the general trend of events. More positively, they see themselves as modern people who ought to participate in new programmes. Communities who have regular contact with a large town, or who have some members who have travelled widely, are often in this progressive category. They can understand the benefits of long term programmes and delayed gratification, having seen examples of these elsewhere. Extension staff can instil a long range, sustained commitment to extension activities by using such people's past experience to good advantage.

Fear also causes people to learn new ways of doing things, albeit reluctantly. The wish to achieve a better life, combined later with the fear of failure, is frequently the root motivation for children to attend school, study hard and pay attention in class. The fear of losing valuable land through erosion may cause people to attend a meeting about soil conservation techniques. Fear, however, is a negative feeling which, once overcome, is no longer a reason for doing things.

There are also a number of reasons why people choose not to do things. Lack of physical fitness or disability may make doing new things difficult. A person's view of himself may also be self-defeating. He may fear he is too weak or too dull to do something. A belief also that "things are in the hands of God" may serve as a reason for not acting. Previous experience with a similar scheme may persuade people that they do not want to try such a thing again. Indeed, there are many reasons why extension programmes must begin at the point people find themselves and then move forward at a pace acceptable to them.

Why people learn or do not learn may always remain a mystery to those trying to promote change. The reasons are inevitably complex, rooted deeply in a person's, or a group's background and rarely expressed in simple terms. One reason for emphasising the role of development communication as part of a

forestry extension programme is that gathering knowledge about how, why, and what people learn can make the difference between enhancing change or trying to impose it against resistance.

5.3.3 What people learn

A key element in what people learn, is what they pay attention to. Their minds are unable to absorb all the information coming into their brains from their eyes, ears, nose, skin pressures (touch) and mouth (taste). These five physical senses are guided as to what is important by the brain's attention mechanism. In their daily activities, requests for attention are constantly being taken into the brain and processed. A rain drop hitting the top of a person's head immediately directs that person's attention to the clouds and whether or not to take shelter. People are quite selective in their perception of the world. They direct their attention at any one time to a narrow range of particular stimuli. They learn what they consider necessary for them to learn and ignore a host of other stimuli. The livestock keeper can identify his cattle individually by colours and form, even within a herd of hundreds. This may mystify the forester who, in turn, can identify a single tree species out of hundreds by a leaf or by a shape on the horizon.

To communicate the necessary information and knowledge about forestry extension objectives it is essential to fix people's attention on trees and then hold it long enough to convince them to undertake a long-term change in their life style. For the community which has reached a point of awareness of the danger of deforestation, securing attention is easy. The mass media are useful for reaching large numbers of people and directing their attention to a problem; then the task is the follow-up. The mass media must however be constantly revised or the message of an oft repeated radio programme, poster or film becomes stale. A poster can become virtually invisible after a few weeks. It simply becomes part of the background and people pay no attention to it.

The task of working out a long term strategy for, first getting and then holding, people's attention to forestry extension matters often falls to the DSC specialist, if there is one available, or to the person in overall charge of extension activities. Occasionally ideas can be borrowed from the world of commercial advertising. Foresters however have one disadvantage which advertisers do not have. Forestry extension programmes must hold people's attention over a long period rather than just long enough to make a quick sale. It is tempting to copy the techniques of commercial advertising but care must be taken that quick-sell techniques do not fail when applied to long-term projects in forestry extension.

People learn what they see as necessary for them to survive a little better or a little more easily. Human beings try to conserve their energies when possible and maximise the benefits from the energies they expend. If a proposed forestry programme clearly demands more from the people than they are willing to give, the choice is either to modify or abandon it or else to attempt to force people to adopt it against their will, which is sure to fail. The belated use of good communication methods will not save a bad programme. By first planning programmes which take into account people's wishes and needs, and then implementing programmes which communicate in the language and methods which suits the people, there will be a good foundation for meeting their forestry goals.

5.4 An example of DSC principles and material in use

One comprehensive example of how DSC is working in forestry extension programmes is in Nepal. The Community Forestry and Afforestation Division (CFAD) of the Forestry Department has a central level unit, the Motivational and Educational Unit, responsible for training and extension activities. This is where DSC leadership is centred. Its main tasks include:

- developing technical and extension reference materials for all staff levels;

- developing training aids for training staff;

- developing audiovisual materials and methods to support field staff working with the villagers;

- limited use of mass media (mainly radio) to support extension work.

An assessment of staff training needs revealed that a wide variety of training topics were required, especially in extension knowledge, attitudes and technical skills. This meant a number of different levels of staff training materials and programmes had to be produced. National level forestry officials needed orientation seminars about forestry extension objectives. District Forestry Officers, who play a major role in training their staff and running the extension programme, needed suitable teaching materials. Flip charts, booklets, manuals and film strips were produced for this purpose. Field staff working with the community also required flip charts, information booklets, posters, signboards and film strips at an appropriate level for their work. Community workers needed training in technical forestry topics. The materials carry information both about forestry extension and the part the people can play in understanding and implementing the new forestry policy.

At the level of mass media, radio programmes were created to inform and motivate people. Many misunderstandings arise when community forestry programmes are started and in this case radio programmes were broadcast which helped to dispel some of these misunderstandings, particularly since details such as the names of villages and local leaders were mentioned. Extension staff and villagers were interviewed in the field to promote direct communication between people instead of the more typical format where a government official is interviewed in his office, sometimes talking to the people in a rather paternalistic manner.

It is easy to underestimate the importance of seemingly minor things, such as the design of a "logo" or symbol for the forestry extension programme, in the rush to get things started. However, such a symbol was created for the programme in Nepal and identifies the workers, tree nurseries, and publications as part of the forestry extension movement. The design process was a good example of how communication planning can benefit by being open to change through evaluation. The design underwent several modifications before it was accepted as appropriate. The pine tree originally used in the design was found unsuitable, as it contributes no animal fodder and is less preferred for fuel than other species. A more suitable local tree species was substituted. A tree seedling was added later to symbolise planting or replanting of new trees.

5.5 Scope of development support communication

There have always been individuals who have the ability to teach well or communicate easily with one another, whether sitting around talking about the day's events under a shade tree or discussing complex abstract ideas. However, programmes and projects depend on individuals of different levels of skills and good communication within groups, especially in bureaucracies, cannot be taken for granted.

Communication techniques have often been modelled on the one institution which must have accurate communications to survive, the military command structure. Orders flow from the top command level to various intermediate levels. Eventually the person in the field carries out the order, whether it is in his best interests or not. Most forestry departments have a topdown organisational structure, but they now have the need to create programmes which reflect people's co-operation, for which a new style of communication system is necessary. Unless these programmes draw the people into an organisation similar to an army, forms of communication other than "orders" must be devised.

One reason for adopting development support communication concepts is to make sure that organisations have communication methods and channels which ensure a flow of information and understanding in all directions. Activities which promote good communication within a programme include:

- frequent field visits by senior staff;
- refresher and training courses;
- developing skills of small group leadership for field staff;
- organisation of awareness campaigns;
- evaluation of programme objectives by the people and programme staff together.

The emphasis must not be simply on getting a message to the people, but on making sure there is a good message flow between all parts of the programme over its entire lifetime, starting with the conception and planning stages.

5.5.1 DSC specialists

Communication activities are centred mainly on the communities themselves after the initial stages of organising a forestry extension programme. Extension ideas are spread by community level extension staff. Communicating technical information such as attitudes towards tree planting, planting methods and the necessary follow-up, however, requires careful attention if misunderstandings or distortions are to be avoided. It may be possible in some cases to assign responsibility for co-ordinating communication activities to one person. Such a person may be attached to headquarters and have the assistance of some additional staff, but he should spend as much time in the field and at training sites as possible. If one person has overall responsibility for the co-ordination of information, with access to all parts of the programme it enables an important feedback link to be established between the people, field staff, headquarters and the policy makers. As a result messages flowing between different levels of the organisation should be more accurate and relevant. The person co-ordinating this work should ideally have certain skills and background experience.

Some of the characteristics he should have, or aim to acquire as soon as possible, are:

- qualifications at senior technical or professional level with extensive field experience; (A senior technician who has worked up from a rural background may be of much greater value than a younger, more professionally trained person, coming from an urban or academic background.)

- training and experience in the use of teaching methods, so that he can help to devise, and conduct, staff and community training courses;

- the ability to create and use communication media of all levels likely to be of use in the campaign;

- the ability to listen, observe and understand accurately what other people are trying to communicate;

- a desire to learn from others and apply that knowledge for the benefit of the programme;

- the ability to conduct objective evaluations of communication activities, (including those he or she may have helped to create);

- a strong belief in the ability of people to adopt an idea which is in their own best interest and to make it work, when appropriate resources are available;

- patience to sit through long meetings, whether in villages or ministerial conference rooms;

- the ability to recognise and analyse communication difficulties which arise during such meetings;

- the ability to suggest methods of improving communications within an extension programme;

- experience in forestry and/or agriculture in order to interpret technical information to extension assistants and to the people.

It must be emphasised however that this is an ideal list of attributes to which a person might aspire. It must not be thought that if an organisation cannot immediately produce someone who meets all these specifications that nothing can be done about improving communications. The most important attribute must be a willingness to make things work and to develop the best level of communications that circumstances permit. Recruiting from outside the country may not in itself be an answer as a knowledge of local customs and values is as important as a theoretical knowledge of the subject. Local staff must not be afraid to try, and to pool their knowledge and experience, to build up the organisation which is desirable for successful extension.

Where the level of activity justifies it, and where staff numbers and financial resources permit, a DSC co-ordinator may have district level assistants who can produce materials, train staff and generally support communication activities in programmes in that area. They may be responsible for the operation and programming of cinema vans, for the production of radio interviews, and the distribution of posters and pamphlets. They may

also take part in training courses for the staff and the community and in the production of simple teaching materials particularly adapted for the use of local extension staff. They can assist the co-ordinator in pre-testing materials to be used in awareness campaigns and in obtaining suggestions for improving the distribution and use of materials. In general they can act as local co-ordinators of information flow.

These must however be seen as a possible range of activities from which certain priorities can be selected. To give such a person too wide a brief, particularly initially, is a recipe for disaster. Success in a limited field can be built on whenever new requirements arise. In certain cases the use of staff to carry out these tasks in the community at the extension assistants' level might be considered, but the problems of finding suitable candidates, at a correspondingly lower level of experience and skills, should not be underestimated. The goal is to build up an effective organisation for promoting the smooth flow of information, and not to build up a large, and possibly poorly equipped group, which might itself suffer serious problems of communication.

5.5.2 The procedures of development support communication

To start the process of development support communication functioning effectively, a person must have a range of skills and procedures at his or her disposal. Some of these are simple human qualities and abilities such as the ability to listen and to help people to understand each other. These may be necessary to overcome communication problems within the organisation itself before it looks outwards to assist others. Failure to understand different points of view within the organisation may lead to hostile feelings between staff members which will greatly reduce the effectiveness of their joint efforts.

A knowledge of the materials which can assist communication is also necessary. In small organisations this may be limited to the knowledge of how to produce good posters or simple pamphlets. In other cases it may even involve some understanding of such things as satellite communication to reach all the people in a country. An important personal skill, however, must be to distinguish which are relevant to a particular situation and to avoid the waste of time or money in pursuing too advanced techniques.

The essence of communication technology is that it can allow a carefully planned message to be delivered to as many people as can usefully benefit from it even though this may exceed the capacity of the field staff to deal with the situation which might arise. Radio and television are valuable in getting accurate messages to illiterates, or to people who cannot attend training sessions, but care is necessary to limit the audience to the level that the field staff can actively assist in any necessary follow-up.

A brief recapitulation in this context of some of the methods discussed in Chapter 4, before moving on to look at some procedures in more detail, may be justified.

5.5.2.1 Group media

Group media, such as films, filmstrips, slides, dramatic performances, puppet shows, sound and video recordings, are useful when used under the direction of a member of the staff or an appropriate person selected by the group. The leader has a degree of control over the material and presentation which is lacking in mass media. He or she can use it:

- to stimulate discussion of relevant issues;

- to present a case study of another community's way of creating a local extension programme;

- to present an introduction to a technical issue such as seed collection or nursery establishment;

- to dramatise a key problem which is likely to arise later in a forestry extension programme and to work out possible local solutions in advance (e.g. problems of one family's goat eating other people's trees).

The media used on such occasions need not be elaborate or technically perfect but the message must be relevant. The role of the leader is to introduce the presentation, explain any unclear parts, summarise what has been presented and obtain specific suggestions for a follow-up. People often appreciate this type of break in their routine and the change in form of presentation from the customary lecture by officials. The leader is helped by having a stimulating and entertaining way of presenting an idea to a group. Too often unfortunately such an event, (e.g. a cinema show) is used only as entertainment. There is no structure to the event, no involvement of the people themselves and no reinforcement of the message by the staff present.

5.5.2.2 Mass media

Mass media are those communication procedures which are designed to reach many people at the same time, or within a short period after production, with an identical message. Examples are, broadcast televison and radio programmes (as distinct from recorded programmes) and newspapers. The messages they transmit are often received by the people as individuals rather than in groups. There is usually no immediate follow-up activity. They are often used for creating awareness prior to local extension efforts, which do provide a follow-up by extension staff.

5.5.2.3 Printed support materials

These include posters, wall charts, handouts, booklets, brochures, training materials and staff newsletters which remain after the image has left the screen or the radio has been switched off. The printed materials represent a generally less sophisticated type of technology in communications media. They have the drawback that only literate people can use them, even where the printed materials are entirely pictures. Pictorial illiteracy is a serious problem frequently overlooked by more sophisticated people.

For staff training and for distribution to schools, printed materials are essential to ensure that the advice given is uniform, that standard work procedures are followed and that any training given is systematic. Training materials should be carefully planned so that illustrations repeated in films, filmstrips and posters are consistent and ensure that the central messages of the programme are repeated and reinforced.

One advantage of using development support communication materials as part of an extension programme is that the materials are planned in advance and can be tried out and rehearsed on a limited scale before general distribution to ensure that the message is understood. In this way the extension programme can carefully sequence and control the quality of the information it provides. The value of this control depends on how the communication media are used by the extension staff. If staff are simply given a filmstrip

and projector without training in the techniques of filmstrip presentation, the show will not be as effective and as well integrated into the overall plan as it might be. It will lack the lively discussion which can take place when materials, especially incorporating local scenes, are presented with good leadership. A simple "injection" of media is too often believed to be sufficient to do the job. In fact all the media should be seen as only a part of the whole programme and should be used as suggested to accomplish objectives of providing information and stimulating interest. A key task is to see that the materials are well used and integrated into the overall development programme.

5.5.3 Training materials

The development of staff and community training course materials is also a part of the DSC contribution to an extension programme. A training materials package should have all, or most of, the following contents:

- a statement of policy and objectives from the organisation;
- a technical reference manual on the subject being taught;
- a lesson plan with objectives, necessary preparation, and teaching strategy;
- a daily training schedule;
- audiovisual teaching aids, (including real objects);
- technical handouts; evaluation procedures;
- suggested practical activities, study trips and follow-up.

One important drawback to providing high quality training programmes for either staff or the community is the lack of training packages which give the trainer the kind of materials and backup necessary to do the job properly. It is the responsibility of programme administrators to see that such materials are budgeted for when a programme is in its early planning stages.

One difficulty in producing these training kits is the amount of time and effort which must be devoted to their creation. In the early stages of a programme, priority must be given to producing materials for staff training. This ensures thorough staff training and also sets an example for the training of the community by the extension staff. Later efforts can concentrate on community level training. As a short cut, materials produced for staff training may be modified for use with the community, particularly the audiovisual aids, which require considerable initial planning and production time.

5.5.4 Evaluation process

In the field of communication studies, feedback is an important part of the communication process. The term has now entered everyday language and simply means that information is received on how well a message was sent, and understood, by the intended receiver, whether that is a single person, a group, or a national audience. One task which a DSC worker must undertake is evaluation of the communication media and processes used in an extension programme.

When an attempt is made to find out objectively how well messages are received and whether objectives are being met, the process is called "evaluation". This has been further divided into two types: formative and

summative evaluation. In the communications context, a preliminary trial of a communication effort is termed formative evaluation. When the material or activity has been used in its final form, it is called summative. Formative evaluation allows a person to modify the preliminary version, of say, a film, before making final copies, when it is not too late to modify its contents. Summative evaluation provides an overall look at what has been done in an effort to improve the communication performance on another occasion.

5.5.5 Questionnaires, interviews and observations

There are social science methods for obtaining information from, or about, people's opinions, knowledge and attitudes. Their use in surveys needed for basic planning was mentioned in Chapter 3. They are also part of the communication support process used to discover where and when communication breakdowns are occurring. If questionnaires are conducted anonymously within an organisation, it should be possible to identify bottlenecks and weaknesses which staff members know about, yet might avoid discussing, or including in written reports, for fear of repercussions.

When these techniques are used in the planning and evaluation of communication methods, a DSC worker can get a better understanding of how to design and use the materials he or she is assembling. A fundamental task of a DSC worker is to develop a clear description of the people for whom a programme is intended and this obviously must include their views on the usefulness or the progress of the programme.

5.5.6 Delivery techniques: formal and informal

Materials can be created which are relevant, appropriate for the target audience, attractive and tested for their understanding, but that may not be enough. They must get to the people who need them, the extension staff and the community. When using radio, reliance is placed on a broadcasting system to distribute the message, but it is necessary to ensure that batteries are available in places where the radio programmes should be heard. Newspapers may, or may not, be arriving regularly in an area at which feature articles or columns devoted to forestry extension activities are aimed.

Unfortunately, handouts and materials intended for distribution to the community often pile up in store rooms at national and district level headquarters. Solving the problem of distribution becomes the task of the DSC staff in collaboration with the district and community extension staff. Field days and special visits by officials to forestry extension projects mean that transport will be available and that some of the materials can be taken along, if someone realises their importance and remembers to send them. Informal arrangements can sometimes be made with bus or logging truck operators to carry small bundles of materials to remote areas where extension staff may not be getting materials regularly. In other areas where a satisfactory system exists, the postal service can be used. This requires thinking ahead and budgeting for a variety of distribution methods. Other methods of spreading information materials includes distribution through the schools or the health services. This may be via the teachers and staff who come into district headquarters occasionally. All possible avenues of distribution of materials must be investigated to ensure the material gets to the right place and does not lie unused because of distribution problems.

One advantage of periodic training courses for staff is that those who take part can be given materials at the time they leave for their posts. Some time should normally be included in the training course to review and explain the materials being distributed. This also provides an opportunity for staff members to discuss, and if necessary criticise, new materials being

produced and to suggest ways of improving existing materials.

When using media more sophisticated than handouts, such as filmstrips, the extension staff must have, for example, a supply of spare lamps, lens replacements and a reliable power supply. It is the responsibility of the DSC staff or their assistants to make sure that this backup can be provided. The supply and distribution of communication materials must reflect the realistic delivery conditions which prevail. If an organisation is unable to deliver a quantity of pamphlets at the right time, people are entitled to doubt if it will succeed in delivering more important materials required for an extension programme.

5.6 The risk of using DSC approaches

Development support communication concepts are most suited to the strongly participatory approach advocated in this publication. The use (or misuse) of DSC approaches in some programmes may simply make them a propaganda exercise to promote a particular idea. In other programmes, the full use of communications strategies may put the established "top-down" approach at risk. In rigid forestry programmes, heads of organisations may not want to hear what people are saying at the community level. Extension staff may feel obliged to alter their survey data in order to please their superiors after discovering that the views of the community conflict with the objectives of the programme. The logical solution to this embarrassment is not to conduct any more surveys. Training courses which try to promote discussion of issues and experiences may reveal deep-seated emotions which run counter to official policy. The obvious solution then is to drop training courses, or at least not to foster discussion within them, but simply to lecture from a printed script. In other words, DSC elements may be seen as counter-productive unless a programme is committed to the participatory approach.

Even a simple filmstrip can inspire discussion and participation which may lead to the demand for services which are not offered by a programme. Forestry extension staff must recognise that communication activities may bring unexpected or even unpleasant results. For leaders truly committed to a participatory approach, this should be a satisfying and hopeful sign of life within their programme. For those coming from an authoritarian, "top-down" background, the critical remarks of a villager during a radio interview may induce rage, rather than produce revelation and revision. Those who wish to adopt DSC ideas must be aware that these situations may arise.

6. WORKING WITH THE COMMUNITY

6.1 Choice of approaches

This section again tries to emphasise the importance of people in forestry extension programmes and the need to give as much attention to developing a correct approach to them as is normally given to the technical aspects of the programme.

The way in which a group of people develop a view of the future can vary a great deal. In a traditional setting, the view might be that of one local person, but one whose view carries great weight because the people accept his leadership as king, chief, landlord or priest. Where traditional leadership has been replaced by central government, the authoritative person today may be an elected or appointed political leader or government official.

The view of the future might be formulated far away, laid down by a central committee, or government ministry in the national capital, establishing policy decisions to be carried out at the community level. The committee might be made up of community representatives who had discussed matters thoroughly before reaching a decision. It might on the other hand simply give formal approval to a decision presented to it by a leader with absolute power.

6.1.1 Process of decision making

One important way in which decisions are made is called, participation, a term used frequently in this publication and elsewhere in this context. This term means simply the involvement of the community in decisions which concern their future. Low participation is often a sign of an authoritarian situation, one in which a person or a small group impose their ideas on individuals or on the community. Decisions come from those in authority, rather than being made by the people who will carry out the work in the future. Where decisions are made by voting or consensus, with all the people concerned free to express themselves, and the decisions are finally stated by an elected chairman, the decision-making process is considered to be participatory. More often than not decisions made by communities are somewhat short of full participation but not absolutely authoritarian.

A distinct advantage of the authoritarian approach to decision making is that action is usually taken right away, which gives a sense of action and accomplishment. It is good for photographers and film makers because something specific can be seen. Unfortunately, the problems involved are often not fully considered. Ten thousand trees planted in one day or 25 new energy-efficient stoves in operation looks good. The staff responsible for organising the event may feel a sense of pride and think of well deserved promotion. All too often, however, the trees may die of neglect or the stoves end up unused and the community return to their previous way of doing things. The enthusiasm on the day was genuine enough but the members of the community were behaving like actors. They were carrying out a role someone laid down for them, not taking part in something they wanted to do and had planned for themselves. When the pressure was removed no further interest was shown in the project. The situation is different when people sit down and decide amongst themselves to do something, in their own way, not just to please someone else. If women are involved in decisions which are crucial to their lives, there can usually be a fair amount of confidence that something lasting will take place. If there is substantial agreement, preferably a consensus of all concerned, it is possible to feel more confident about how long the trees will live or that the stoves will actually be used.

6.1.2 Outcome of decision making

The way a decision is made has a direct influence on how well it will be carried out. This is called the process of decision making. It is the means leading to results. It is a necessary step before people take on the tasks they will have to perform to bring about the desired results. Throughout this publication, the need for the participatory process in decision making has been stressed in order to achieve lasting results. Exceptional cases can be quoted where considerable results have been achieved by authoritarian means. Often, however, these accomplishments such as building a road, harvesting a crop or enrolling for literacy classes are isolated efforts. They lack both the interest and support which will make them a continuing feature.

6.1.3 Reasons for rural poverty

Many reasons exist for rural poverty. No one reason is sufficient to explain a people's condition. Erratic rainfall can make farming hazardous and if this persists for some years people can be forced into desperate straits. In other areas however people may also have erratic rainfall but do reasonably well by developing supplementary irrigation or by collecting water in conservation ponds and using it gradually as required.

Certain kinds of land tenure systems can perpetuate conditions of poverty, yet poverty can be found in areas where the people control the land as well as in areas where landowners have complete power. A lack of capital has been cited as a main constraint on the poor, but rural credit banks have provided millions of people with loans over the years, with generally few long-term results except a large burden of debts by the borrowers.

The topic of this publication, extension, has not been a great success in many places. Again, the reasons for failure are not simple, or always easy to identify. Certain factors can, however, be identified in those areas where extension has contributed to raising the standard of living amongst the rural poor. This is the dilemma of rural development: it is known that certain factors are almost always present where genuine progress has been made to reduce rural poverty, but it cannot be predicted that those ingredients are sufficient every time. This chapter tries to identify the factors leading to success as they appear in the community and in the foresters who work with them.

Some clarification is however necessary of the terms, success and failure. They tend to depend too much on the criteria used to define them, and on circumstances surrounding the location of the events, to have any absolute meaning. A short-term success can turn quickly into a disaster if, for example, a small earth dam constructed as a community self-help project is washed away because of poor technical design. It is true that the objective of co-operative work was accomplished and it can up to that point be called a success. The goal of controlling a river and providing water supplies throughout the year, however, though initially achieved, was ultimately a failure.

In the same way, an objective of having 50,000 trees planted can be achieved and seen as a major success. But if goats are left to browse and the trees are neglected, with barely 1,000 surviving after a year, the operation cannot be classed as a success. Shallow wells may be sunk by a team of skilled drillers, at a very great rate. A large number of wells equipped with hand pumps may then be provided where only muddy pools existed before, but if three years later only a few pumps are still in operation, because of failure and neglect of the rest, the initial promise of improved

living standards turns into a sad reminder of what might have been. Rural development specialists cannot feel satisfied with the record of the past decades and claim that there is a direct, easily followed, path to development for any community. It is necessary to look carefully at what has happened, and why, and try to achieve better results.

6.2 Thinking about community life and change

Extension staff often come to a rural community as strangers. For a young, recently qualified person assigned to work with a group of people, the prospect of being accepted by the group may seem bleak. The people may be wary of yet another government servant. He or she may not be the only extension staff member assigned to the area. Others may be there to promote crop production, livestock development, community health, water development or several other important aims. All of these share a common need: working with people requires an understanding of community life and its perspective.

Rural people living in difficult circumstances take each day as it comes. In spite of unfavourable climates, nomadic pastoralists have worked out a way of life which cannot be entirely wrong. They have lived it for centuries and have survived with their cattle, sheep and goats and an eroded land. A delicate balance of nature, of a sort, has been established and maintained. Vast expanses of land are necessary to sustain their way of life. They know that mountains which provide periodic runoff water which seeps into underground wells must have some forest cover left to let the water come off slowly. They understand that contact with other human beings must be limited, or new diseases may be introduced for which there is no natural immunity. Changing conditions, however, require people to alter their ways of surviving. They must discover how best to do this within their own setting and usually one step at a time.

Farmers who practised shifting cultivation depended on a ready supply of new lands to open up for planting. The old lands had to be allowed to become fallow. Homesteads were scattered and the population density low. Their needs were modest and a few hectares per family were all that were required. Now in many parts of the world, the traditional shifting cultivation is no longer possible. People feel the results of rapid population growth even if they do not understand the term or the causes. There is less opportunity for shifting cultivation each year. The past clearing of land has meant that there are fewer and fewer trees remaining to restore fertility. Encroachment into the forest is taking place rapidly. The traditional agricultural practices of the past cannot be sustained.

In the face of continued population growth something must suffer, and in many cases around the world it is the environment that has yielded to man's pressures. Where the land's resources are used up faster than they can be replaced, the land can no longer sustain the increasing population. Some people must move out until a balance can be achieved between what is taken out of the land and what is put back in. These natural laws were discovered long ago in some places, but in others they are only now being experienced. This focuses attention on one of the problems at the core of forestry extension: how to bring forests and people back into balance so that people can survive in dignity. Those taking part in forestry with the local community must avoid the perspectives of typical representatives of the central government. There are no simple, clear answers for all conditions and all people. It is known that many agricultural extension programmes have failed because universal prescriptions have been imposed on people without their active involvement. Extension staff may get trapped in a case of narrow logic: if the land has been cleared of trees for such things as more farm land, building materials or firewood, then the people must simply be

educated and encouraged to plant more trees.

One major flaw in the logic is that organisations often act in isolation. The forest authority may advocate the planting of more trees but the agricultural extension staff have told the people that they must grow more crops, since the country cannot import enough food, and requires cash crops for exports. The livestock staff may have been around telling the people that more animals will bring more income with less work on their part. This will, however, require more land for grazing.

Each extension organisation has its own instructions about what is required at the community level, and these instructions may well be conflicting. A person may well agree with all three pieces of advice when given in isolation, but is unable to resolve the conflicts inherent in the three suggestions. The person also faces the constraints of fixed land boundaries, a fixed capacity to do work, little or no capital, limited technical knowledge, poor health and the overriding need to feed his family. In addition, he may resent being told what to do with his own land and resources, particularly by someone who does not appear to have produced, in the past, anything more substantial than advice. Thus it is essential that different extension organisations try to co-ordinate their programmes at community level. Though the local level staff must adopt this as a major aim, the leadership must come from the district or a higher level. It is over optimistic to imagine that junior level staff can branch out and adopt a policy their seniors have so far failed to recognise. The initiative should come from the district level staff co-ordinating field programmes and providing clear instructions for community level staff to co-operate with other extension organisations. Even where the guidelines are unclear or defective, community level staff should get to know what other extension staff are trying to achieve and try to co-ordinate their activities as far as possible while pointing out to their superiors areas in which closer official co-ordination is required.

6.3 Some guidelines for forestry extension

There are no universal rules for extension: the exceptions would be too numerous to count. There are, however, a few guidelines which should be helpful for those trying to implement a forestry extension programme who feel uncertain about the task. As with any advice, it should be considered carefully, and then adapted to meet a particular situation, or discarded, as appropriate.

6.3.1 Consider the client's position

A person may never be able to put himself completely in the place of another, but a genuine effort to find out, and take into account, the pressures which act on rural people will make a great difference in understanding what takes place in the course of a forestry extension programme. The lack of rainfall, the death of a close relative, the fear of growing old without adequate provision, debilitating disease or religious beliefs can contribute to a sense of not being in control of events. This in turn can lead to a lack of comprehension or belief in long-term plans, or promises of future benefits. Similarly, it may be unrealistic to expect substantial contributions of free labour during periods of heavy work such as planting or harvesting times. Understanding someone else's viewpoint puts a person in a better position to anticipate likely responses to suggestions.

6.3.2 Start small: aim for a modest success

When people work together for a mutual purpose and achieve that purpose, the effect is encouraging to everyone taking part. A sense of "it can be done" overcomes the all too prevalent "it is hopeless". Failure on the other hand brings a sense of loss or even of betrayal. The loss may in fact be very real, in the form of hard work, time, and trust which cannot be replaced. A series of small successes may take up more of the time of the extension staff than a single full-scale mobilisation of the community but too often people see a mass turnout as a success in itself, rather than the lasting achievement that should come from the activity. If a number of small successes can be achieved, some occasional failures may then be taken as acceptable risks, and may even be seen as opportunities for learning how mistakes can be identified and overcome. Often this means that extension staff must encourage the community to keep their ambitions in perspective. Their hopes may far exceed their immediate capacity to bring them about. They may, for example, greatly under-estimate the time, labour and resources required to terrace a whole hillside in one year.

One way to start small and achieve a modest success is to concentrate on what normally comes first in any case. Collecting seeds and starting one or two small nurseries may be a useful first step. Planting trees in strategic locations where people can see the results is another small start which will provoke interest, though it does carry the risk of disillusionment if the plantings are not successful.

6.3.3 Promise only what can definitely be provided

As outsiders representing a large organisation such as a government or an external aid agency, extension staff may be seen by the people as persons capable of providing generous assistance. There is a temptation for the extension staff to support the views of the people, to gain their admiration and to get on with the programme. Promises of a few bags of fertiliser, the use of a truck, or the visit by a high official may all seem reasonable promises in the enthusiasm of a meeting. If these promises fail to materialise, however, the trust of the people in the extension staff will fade quickly.

6.3.4 Keep within the bounds of personal knowledge

Extension staff must accept that even a comprehensive training cannot hope to cover completely all aspects of the work they may be required to do. In some areas it is better to admit ignorance and seek further advice than to give misleading information which may lead to failure and discredit future work. In areas where "loss of face" is a serious matter, however, care must be taken in handling such a situation, but some formula for "referring to a higher authority" can usually be found. One advantage of applying the Training and Visit System to an extension programme is that field staff have regular access to technical information from their supervisors. An unsuitable tree species planted by mistake can prejudice the success of forestry extension for a very long time. District staff should take their responsibilities for supplying technical information to their field staff very seriously and act promptly on requests.

6.3.5 Make sure the community contributes something to the programme

Too often programmes are prepared on the assumption that communities cannot or will not contribute anything in cash or kind to a project. In many cases it has been shown that when people invest something in an extension effort, there is a better chance of lasting success than if everything is

provided free. In fact, in some areas people distrust anything that is offered completely free. They assume, either that it is worthless, or that there is some hidden catch in it. It is often possible to meet these conditions by offering aid which is heavily subsidised, but still not entirely free of cost. The people will then feel they have a real share in the programme and are not simply receiving a gift. It forms a test of the value people attach to a programme, if they are willing to contribute something to make it a success. If there is a reluctance to contribute, it possibly means the community see little chance of any future return or that the programme is too ambitious and the risks too great for them to accept.

At least the extension staff should be aware of possible difficulties when people do not commit their own resources to a programme, however small the contribution might be. This may go counter to the policy of a government which has decided that services to the people must be provided without cost. Stress should then be placed on as great an in-kind contribution, such as additional labour, as is possible in the circumstances.

6.3.6 Match the programme to the people's needs, interests and capacity

A forestry extension programme must be adjusted to the felt needs of the people. The task of defining these needs in realistic terms may have taken the forestry extension staff some time. The result should, however, be a programme that reflects the people's views rather than those imposed on them from outside. This will vary from area to area, so that a common pattern cannot be laid down for a country from the national headquarters.

People will require information, knowledge and leadership to begin forestry extension activities even at a modest level. The people's capacity to carry out a growing programme will need to be expanded as new stages are reached. It is the task of the extension staff to provide such assistance when the timing is right. A training course, a visit to another community, or technical information and encouragement may be required when interest flags. People build on their past experience and can often identify what assistance they require to proceed further with a project.

A measure of a programme's long-term success is how well the community can continue the programme with less and less support from the forestry extension staff. Often the differences between the people's goals and the programme organisers' goals are too great for the programme to be self-sustaining. These differences lead to disappointment and misunderstandings. The tendency then is to blame persons rather than the circumstances which led to the differences between what the people felt they needed (or did not need) and what the forestry extension programme staff felt should be done. A careful definition of needs at the beginning of a programme may avoid this problem and promote a better capacity to bring it to a successful conclusion.

6.3.7 Recognition of constraints

Money may be less a constraint in carrying out forestry extension programmes than the ability to use the existing resources fully. The greatest asset a forestry extension staff member has is knowledge and information. This is usually the greatest asset of the community as well, only the knowledge and information they have is different. It is adapted to solving the local problems they encounter every day. Drawing out the existing resources of a community can be one of the major contributions made by outside extension staff. A knowledge of who can do what; who has what tools; who knows where to get certain materials; who is going to town regularly; and whose relative is working in which company, office or shop, can all be vital

to the successful development of a programme.

Putting together the available knowledge, information and resources into a coherent plan can be an exciting activity for a community. Applying these resources for the community's development becomes a large step forward in self-reliance. This makes what limited funds may be available for a programme go much further and avoids the assumption that money is the solution to all problems.

6.3.8 Need for suitable staff

A successful extension programme must have staff who are well motivated and well trained, and who respect the people and enjoy rural life. This situation comes about partly through good selection procedures, careful initial and periodic training, enthusiastic leadership, good communications with headquarters, reasonable terms of service and realistic evaluation procedures. The question of staff selection and evaluation is considered more fully in Chapter 11.

6.3.9 Participation by the people is a necessity

The quality of the participation is especially critical to how the programme will survive in the long run. Participation may be by a small group of people who represent only themselves and are no more than a group of opportunists. It may also be truly broad-based, with co-operation from whomever is asked. It is not always possible for extension staff to know the kind and quality of participation at the beginning, or even during the early stages of a programme. Monitoring and evaluation techniques can, however, be useful in identifying trends or problems in participation.

6.3.10 Support for local field staff

While programmes in forestry extension should be community-orientated and community-centred, the quality of support given to field staff by the central organisation is critical to the overall conduct of the programme. This support includes field staff participating in suggesting improvements and giving ideas for new programmes. Refresher training, field visits by supervisors, incentives for excellence, and amenities such as transport and housing assistance all mean a great deal to those living in isolated conditions. Meaningless paperwork should be avoided, but periodic, good quality, analytical reports should be encouraged to provide a sense of professionalism. Transfers should be carefully scrutinised as these often have a very disruptive effect on extension programmes.

6.3.11 Importance of local funding

If outside funds are provided to support community level forestry programmes, those funds should not be a substitute for money provided by the central government or by the community. If this happens, when the money from outside is finally used up, the programme may end with it, as no local source of funds has been established. Funds from outside sources should be used for hard-to-get items which indirectly contribute to the programme, such as a motorcycle for a staff member. The upkeep and running costs of this should, however, be met by local funds. In the same way training costs should remain a locally funded item, but study tours or the payment of outside training staff and special items of equipment could be funded by an external agency. This pattern of funding should be carefully explained to all levels of staff and to the community.

6.3.12 Need for unified programmes

Every possible effort should be made to develop a unified programme with agriculture, livestock, health, community development and other groups working at the community level. The ordinary people do not regard their everyday tasks such as farming, house repair etc., as falling into different compartments, as governments see them falling under different ministries. The community may tolerate conflicting programmes, but their tendency is to pay little regard to them and to go about their business as best they can. They risk being considered unco-operative, but they cannot satisfy all the conflicting requests of so many government officials wanting different things of them. Forestry extension staff can play a key liaison role in many areas because of the diverse and adaptable nature of forestry programmes which can form links with the activities of other extension organisations.

Forestry extension staff may have most to lose through unco-ordinated multi-agency extension efforts. People will generally put greater importance on their staple crops and their livestock than on tree planting if they must choose which advice to follow on a short-term basis. Thus it is in the best interests of the person in charge of forestry in a district to initiate and follow up co-ordinating efforts with his or her district colleagues on behalf of the extension staff in the communities. The case must be put forcefully to all, that without trees, crops and livestock will suffer, along with the people's faith that outside advice will improve their standard of living.

6.3.13 Importance of special groups

Women, youth, and the very poor, require special efforts to involve them either separately or in the main stream of forestry extension programmes, depending upon cultural factors. In many societies it is not easy to include women and youth in programmes as a whole. They choose not to be with men, or it may be made quite clear by the men that the extension staff should have nothing to do with them. This can be overcome by actively recruiting and training women forestry extension staff at all levels, particularly for work with women. This is an established part of community development and health education programmes, and it may be that some of the trained and experienced women in these fields could be transferred to forestry extension programmes after suitable technical training, while more comprehensive training of women foresters proceeds.

If the youth and the very poor are excluded, it is quite possible that the necessary community agreements about production and protection of trees will be ignored by them. This is the negative side of the problem. The positive side is that the youth and the very poor have the most to gain from a successful forestry extension programme, trees for constructing their houses in the future in the case of youth, and easier access to less expensive wood products in the case of the very poor.

6.3.14 Involvement of non-government agencies in extension

Where governments cannot begin forestry extension activities, programmes can be established through respected non-governmental organisations (NGOs) which have the trust of the community. In many places imaginative and effective rural development programmes have been established and run by NGOs. This is because they have been able to be selective, to decentralise, to make long term commitments and to attract highly motivated staff. Their commitment to the rural poor has provided a credibility which governments cannot always match. Encouragement of local forestry groups is a powerful way to see that all the above guidelines are followed.

6.4 Community level forestry extension officer

Each country has its own pattern of staffing for forestry extension activities. Within a ministry there may be a division responsible for national programmes. They may have their own staff of district and community level workers. On the other hand a district forest officer may be required to supervise community level forestry extension staff. In many countries it is unlikely that there will be even one diploma or certificate level officer for every ten communities though one for four or five is considered desirable in some areas. The officer might also supervise the work of voluntary or paid forestry extension assistants. Whatever the local arrangement, the focus in this section is on the technically trained forestry extension officer who serves the community on a day-to-day basis. Even if such a person supervises community forestry assistants his or her primary work is still with the communities. A relevant question is, therefore, what do forestry extension staff actually do?

One major activity is simply talking to people, informally as individuals or as groups. The extension staff both require and provide information. The principal difference between forestry extension staff and forestry staff not involved in extension activities is that the extension staff communicate with people in all sorts of ways and on a great variety of topics: technical forestry, attitude change, behaviour change, news of the area, arranging a meeting, local customs, agricultural advice, family problems, water difficulties, weather and climate, livestock, transport, government formalities, health problems and a great number of other matters all of which are important to people at one time or another.

This communication process operates on many levels. Casual conversation while having refreshments at a roadside restaurant may provide key insights into why people burn hillsides annually, reasons which may never be expressed in formal questionnaires, (because no one asked the right questions in the right way and in the right context?). The extension staff may be one of the few links between higher government officials and the community, providing both groups with the other's views on a number of topics. To be trusted by both parties means the extension staff must be honest and accurate in reporting each party's views. It helps to know how and when to listen; when to speak and when not to speak.

Extension staff as communicators are concerned with more than informal conversation. They are also the formal communicators of facts, ideas, techniques, information and methods of achieving success. They must be able to teach what may be novel ideas to people in a manner which will make them want to learn more. The term formal communicators was used above. In fact, there may be only a few occasions when extension staff are required to take the part of a classroom teacher. An idea offered to the right person at the right time (e.g. while looking at a group of limp young saplings) may have much more impact than a long lecture on how to grow trees. The communication may not even be in words. A simple demonstration trial showing a particular agroforestry technique can stand as a silent reminder to people that new ways are feasible. Working beside a group of villagers shows them that the extension staff want to understand their problems.

It would be wrong to conclude that extension staff simply chat with people. Extension activities are diverse and numerous, and go beyond just trying to know everybody's news in a group of villages. Some of the specific duties extension staff might be expected to perform, include:

- helping to define a community's needs by conducting a needs assessment;

- helping to define which needs might be met by extension work;

- establishing an awareness within the community that certain needs related to trees can be met by the people themselves;

- arranging visits to other places where successful forestry efforts have already begun;

- organising demonstrations and trials of agroforestry techniques, new tree species, disease and pest prevention;

- determining training and education needs in the community and organising training programmes within that area or at a suitable training site;

- arranging for people to obtain necessary materials such as seeds, plants, fertilisers, implements, pesticides and fencing;

- assisting people to obtain credit or grants for forestry activities;

- co-ordinating forestry efforts with other local staff in agriculture, animal husbandry, nutrition, and community development;

- obtaining technical advice on situations beyond his or her knowledge and experience related to trees, use of wood, or stoves etc.;

- arranging for the provision of communications materials and services to communities, such as cinema shows, filmstrips and slide shows, radio listening groups and suitable printed materials;

- teaching special lessons in primary and secondary schools, related to trees, forestry, agroforestry and wood products;

- co-operating with research workers who wish to conduct forestry research at the community level;

- helping people to overcome indirect obstacles to meeting forestry extension goals such as poor roads, lack of water supplies, overstocking of animals, lack of agreement on basic issues;

- encouraging employment in forestry-related activities;

- promoting new ways to use forest products within the community;

- encouraging planting by families of fuelwood and fruit producing trees;

- encouraging the protection of trees from human, animal and natural destruction;

- helping to establish tree nurseries to be run by individuals, schools or the community itself; and finally,

- co-ordinating measurement and data gathering activities, e.g. area, yields, inputs, outputs.

In this list the mention of policing, regulatory or revenue collecting activities, which may form some part of a forestry officer's duties has been avoided. This is based on the belief that mixing local community development efforts with law enforcement and revenue collection is a bad policy. The necessary trust in the efforts of dedicated forestry extension staff can be eroded very quickly if the same person must enforce regulations which seem to the people to be contrary to their interests. This is unfair both to the people and to the extension staff.

6.4.1 Forestry extension assistants

Forestry extension assistants can be volunteers or can be paid a small amount for their work. Their basic task is to follow-up on the plans and programmes which the community have decided upon. These assistants do not substitute for participation by the people, which is still necessary, but they can keep things moving and provide a measure of enthusiasm in their own communities which cannot always be provided by forestry extension staff responsible for several other communities. These assistants should normally be selected by the communities themselves on the basis of their interest in and enthusiasm for the work. Care must be taken, however, that this and not some other factor such as their relationship to an important person, is in fact the criterion for selection.

Training the assistants in the technicalities of extension, and then training them further to teach specific skills to others, is an important part of the multiplier effect which is necessary if one official staff member is to have an impact on an area. If the "farmer scholar" concept is being tried, the people selected as assistants can be added to those who will be trained by the forestry extension officer.

Supervising and following up the work of the assistants by forestry extension staff cannot follow the same bureaucratic pattern adopted in some areas. The extension assistants are not expected to be dependent on the small amount of pay they receive; they must look on it only as a token reward for their motivation, leadership and willingness to take time away from their farms or other work. They can be helpful in interpreting people's views to the forestry extension staff, making arrangements for training of volunteers, arranging study visits and keeping track of materials provided for the programme.

The assistants can form a valuable group of people to support and enhance the limited resources which are characteristic of many community forestry programmes. They should be recognised by the senior officers as important elements in the success or failure of forestry extension programmes. Training opportunities should be made available for those who want to improve their technical skills. Some may eventually be recruited for full-time posts in expanded programmes as their previous training and experience would be a good basis for more demanding tasks. It should be remembered, however, that not all good forestry aides can make the jump to more demanding, but sometimes less creative, work. There may be a risk that they are being promoted to a level above their capacity to perform efficiently.

One form of a forestry extension assistant scheme is found in Kenya's Green Belt Movement, which is sponsored by a non-governmental organisation, the National Council of Women of Kenya (NCWK). Community groups select a person to serve as a "Green Belt Ranger". The Ranger encourages and teaches school children to plant and take care of trees. A small monthly allowance is paid to the Ranger who is, however, not assigned to take care of the trees themselves. Preference in selection of a Ranger is given to handicapped persons.

6.5 Putting together a programme

This must be a co-operative activity between the forestry extension staff and the community. Many communities have factions with strongly held views, based on differences in politics, religion, traditions and wealth. The romantic view of community life found in a number of writings is hard to accept when the task is not simply to sit around and observe people's behaviour, but to encourage people to conserve their natural environment especially through the wise use of trees. On balance, however, it is possible to remain optimistic, applying some general principles in working with people and hoping that a few selected communities will see the value of a modest forestry extension programme. There are times when forestry extension staff will wonder why they are bothering to tackle these problems and reflect fondly on the days when "ability to work well with people" was not part of the job description for forestry employment.

Somehow or other amid the jumble of conversations, surveys, and observations made while moving about and hearing varying opinions about many things, the extension staff will learn how people feel about trees and the land. If the attitudes show a disregard for trees and land use, the extension staff may decide to try educating people on the importance of their environment, and the trees in it, before undertaking a programme of action. In some cases extension staff may decide it is best to go to another place where people seem to care more for their environment. In any case a decision, one way or another, must be made.

A decision to go ahead must be made tentatively and subject to modification, depending on the steps which lead up to the community making a full-scale commitment to forestry extension activity. The activity first selected should be modest and easily accomplished. The process is gradual, with each activity providing more confidence to the community and leading to another step. At some point there will be a need for people trained in simple technology and tree planting procedures. The extension staff must be able to provide that training and other modest support, properly, and with good results.

The role of information and communication in creating successful forestry extension programmes has been stressed. Feedback is particularly important in the initial stages. This means making sure that the people are in agreement with, and understand what they are doing, and why. It is not sufficient to ask only the community leaders. Their views are important, but do not always correspond to what the people themselves are actually feeling and thinking. Since later actions calling for more commitment are often based on what happened early in a programme, the extension staff must be certain about the community's ability and willingness to go further. This is where the relationship between the programme and the people becomes important. For instance, if there is a reluctance to make a token contribution in cash or kind, it may mean that the people are saying one thing but feeling another. It may not be appropriate to take another step committing resources to training or producing plants, but better simply to repeat what was a successful first step until people are willing to commit themselves further.

It may require a great deal of consideration for extension staff to understand people's reluctance to go beyond a certain stage. Community resistance is often put down by outsiders to "backwardness", "ignorance" or "ingratitude". The real cause may be complex, rooted in some unfortunate experiences which they may not be willing to discuss, but which are still vivid in the people's memories. It is necessary to build on success but also to learn from past mistakes. By gaining people's confidence, extension staff should be able to discover the nature of the past experiences, even if they cannot completely overcome the negative feelings that have resulted. This is one argument for having forestry extension assistants who come from the community itself and who are respected members of it, not simply youths who are available because they have neither jobs or land to cultivate. If carefully selected, these assistants can serve to guide an extension programme away from possible hazards and suggest ways of making sure the confidence of the people is not undermined.

Talks, meetings, family visits, surveys and training and explaining all take time. Supervisors will be anxious to see results; project managers have deadlines to meet; some politician's principal objective is holding-on to office. The pressures will mount on forestry extension staff and on the community to produce visible results, but a solid programme will take time to achieve these. Experienced extension staff will know that they must buy time through good public relations.

There are ways of producing visible results early in the life of a forestry programme through using a large number of posters, signs, rapidly growing trees, and impressive tree nurseries. If the community understands the need for a good show, and the chances are that they are experienced in such matters, the extension staff can succeed in two ways: being part of, and encouraging, the community's show of progress, and buying time to carry on with long-term plans. As long as the community understands that the departure of distinguished guests after a visit is not the signal to forget about their forestry extension programme, an occasional flurry of activity and preparation is worthwhile. A casual observer may be justified in being critical of the fuss of preparations associated with the visit of an important person to a project, but if the community is in control of the activities, understand the need for such arrangements and know that the less visible elements of the forestry programme are what really count, then the event is a useful break in their routine.

As seedlings are raised, planted, tended and develop into mature trees for firewood, fodder or windbreaks, the forestry extension programme should become so much a part of a community's life that it is self-sustaining. Decisions on how the crop is to be harvested and sold, and who is to benefit from it, are decisions which should be made at a very early stage, and not when people begin uncontrolled lopping of branches from a community plantation.

Simple forestry management can be introduced gradually. Whenever decisions have to be made, the community learn something about management of their resources. The allocation of land, sharing responsibilities for tasks and receiving and making payments for harvests can all teach management techniques. Particular persons will have to be put in charge of some of these tasks. They should be responsible people, and the extension staff will want to initiate short training courses for them in such things as simple book-keeping, use of bank accounts, improved literacy and arithmetic and preparing reports for the community. If a respected co-operative society is already functioning in the area, many such skills can be learned from the society's staff or, in fact, the society may be willing to take over the functions of marketing the produce and book-keeping. In some way a system of

checks and balances will need to be devised to guard against theft and embezzlement.

The selection of the best people for management tasks is not easy as few of the people may have attempted such work before. After working in the community for some time the extension staff should have a good idea of who may be able to carry out the duties and maintain the respect of the people, but there is no guarantee that such a person will be chosen. In addition to handling accounts some persons may have to serve to ensure that regulations made locally on cutting, replanting, extending the plantings and the proper use of harvested trees are observed. This enforcement function may not be necessary where the community is small and people are well aware of each other's activities. The discipline of community life may be sufficient as long as everyone is agreed on the rules relating to communally and individually planted trees, erosion control, and other related activities. A more difficult task of enforcement exists where several communities join in an activity, or where the land is not under the control of one community. More formal ways of enforcing regulations will then be required. As has been emphasised throughout, the extension staff should not become involved in enforcement or revenue collection.

During the past fifteen years, a need has grown in forestry extension programmes to involve the community in monitoring and evaluating their own programme. This is a logical step if it is agreed that participation is the model for forestry extension programme development and management. Indeed people can be more critical of themselves and of their performance than outsiders may be. They know where their own people have not contributed fully or made proper use of the training which was provided for them. These important elements, monitoring and evaluation, are discussed in the next chapter, which also considers the wider issues of programme evaluation.

7. LEARNING THROUGH EVALUATION

7.1 Reaction to evaluation

"Evaluation" often provokes a negative reaction when suggested to directors of programmes, project managers and field staff. It is sometimes thought that evaluation brings out only what is believed to be wrong with a programme; the successes are perhaps noted, but they seem to receive little attention. A great deal of the valuable time of the field staff may be spent on preparing reports which are supposed to provide continuous monitoring and control over programmes and projects. Often it appears to the writers that these reports are not read critically, or if read, they are not acted upon. The careful preparation of a monthly report appears then to be a pointless exercise which does little more than to assist in compiling an annual report, which may itself end up in a file, quickly read and then ignored.

These are common, and often, unfortunately, justified views on evaluation, monitoring and control activities in many bureaucracies. If they are performed by outside experts, they may be expensive exercises, frequently carried out too hurriedly to be of any great value and undertaken by people of whom field staff have little or no knowledge or particular reason to value their opinions. If properly carried out, however, evaluations can have important functions in identifying, and perhaps eliminating, bottlenecks or defects in the administrative or support services, which may have plagued field staff for many months. If this is achieved, there is every reason to have a more positive viewpoint on evaluation activities. It is this more positive approach that will be considered in this section.

7.2 Evaluation of programmes

It has been suggested that the purpose of evaluation is to keep people honest about what they are doing. It is easy to get emotionally committed to a programme and fail to realise that mistakes have been, or are being made. Sometimes it is felt that mistakes will correct themselves and cease to be important. Successes may, on the other hand, be attributed to good luck without considering their underlying causes. It is necessary to be honest about both failures and successes. If, from time to time, it is possible to stand back and attempt to take an outsider's view of a programme it is likely that it can be improved by having a better understanding of what is going on.

When scarce resources of money, equipment, and expertise are being used to meet certain goals, it is obvious that these resources should be used to the best advantage. There are often several ways of doing a particular thing, and a key purpose of evaluation is to ensure, as far as practicable, that the best way of achieving the goal, in the circumstances, has been chosen. If the goal of a forestry extension programme is simply to get trees planted, this can easily be done by hiring local people, giving them some brief training, and getting the planting done. Evaluation of the programme would then be simply a case of setting the cost of the work against the number of trees planted.

If the goal is to establish a system by which the local people will be able to carry out this work on their own, and to continue the maintenance of the trees right through to the stage of harvesting and regenerating the crop, the task of evaluation is more difficult. A good evaluation strategy requires that a number of steps are specified which will give some indication of how well the programme is progressing at the moment, and at agreed intervals thereafter. In reviewing social programmes, evaluation specialists have identified several stages at which evaluation can be useful.

These are:

- the programme appraisal and planning stage;
- the setting up stage;
- the contact stage;
- the impact stage; and,
- the residual stage.

Each of these stages require different forms of evaluation to indicate how well the job is progressing or has been done. A range of information is normally required, but the time or effort necessary to collect this information depends on particular circumstances. At times, the best overall indicator of how well a programme is going, at any of the stages listed above, is an honest exchange of views with the staff. In the stages of contact and impact, however, the views of the people being assisted should also be considered. There is, however, a need for certain key indicators in any programme, especially those spending public funds. It must be understood clearly, however, that this is an ideal list and it is unlikely that it will be either possible or necessary to follow every step in any particular programme. Discretion must be used in selecting and even in rearranging suggested steps to meet particular requirements.

7.3 Examples of some key monitoring and evaluation data

7.3.1 Appraisal and planning stage

Field data

Past history of the area and prior experience with forestry extension or other forestry activities; attitudes towards trees and tree planting; form of land tenure.

Rainfall data; water sources; transport links to the nearest all-weather road.

Literacy; radio ownership; availability of batteries; nearest school; percentage attendance of eligible children.

Population profile by age and sex, (as far as practicable); sources of income.

Soil types; types of existing trees; possible pests and diseases noted; general topography; major crops.

Livestock herding patterns; numbers of livestock; attitudes towards cattle and grazing lands.

Health facilities; general level of people's health; major diseases.

Existing extension contacts and other services (including churches, schools, mosques, co-operatives, shops, artisans, small industry, cottage industry).

Leadership patterns; factions; political considerations; integrity of officials.

Headquarters data

Degree of support for forestry extension programmes.

Length of time allocated to various programme stages.

Number and quality of staff allocated.

Facilities available for staff training.

Quality of field supervisory personnel.

Logistical support for field staff.

Commitment to a participatory approach in programme planning and implementation.

Amount of local commitment; amount of NGO commitment.

Expected ratio of time to be given by field supervisory staff to forestry extension compared with other duties.

Headquarters willingness to support integration with other extension sectors.

7.3.2 Setting-up stage

The setting-up stage is the period between the granting of official approval to go ahead and spend money and the commencement of actual fieldwork with the community. For some programmes this may take only a short time. Where staff must first be recruited, trained and provided with equipment and offices, however, the time may be considerable. Projects assisted by donor agencies often take a great deal of time for this setting-up process. The key question at this stage is: Is the programme ready to start?

Field data

Nature and number of staff recruited; is the ratio of staff to community numbers satisfactory?

Quality and range of initial training of field staff.

Amount of practical experience the supervisory staff has in the areas and techniques selected for initial programmes.

Logistical support in place; transport available; running costs fully supported.

Community level training programmes planned; materials produced; staff familiar with all materials; training sites selected.

Necessary seeds readily available; materials and tools for nurseries available.

Preliminary research conducted; soil testing, suitable species identified, likely pests and diseases, counter measures planned.

Programme planned to start at the best time of year for the work required.

Preliminary visits to the area indicate that the people are fully in agreement with proposals.

Staff assigned to communities.

Is the flow of information from headquarters to field, and vice versa, during this stage satisfactory?

Headquarters data

Supervisory staff trained and orientated to forestry extension programmes.

Financial support and monitoring procedures arranged and procedures for the smooth flow of funds and reimbursements established.

Flow of information from the field adequate and timely.

Conditions of service fully worked out and understood by all staff.

Public relations and publicity material prepared for specific localities and distributed ahead of time to news agencies and media.

Discussions with other extension agencies indicate their willingness to co-operate.

7.3.3 Contact stage

The contact stage is reached formally when initial contact is made with the communities and the making of forestry extension plans with them is commenced. In most cases, however, some contact with local groups must be made before the steps in the setting-up stage can be effectively undertaken. Awareness of forestry extension goals and objectives is built in at the contact stage. The key question is: Do the people understand, accept and show willingness to participate in forestry extension activities?

Field data

Kinds and quality of forestry extension proposals emerging from the communities.

Extent of participation in the planning process.

Co-operation with extension workers in gathering data.

Indication of community contribution to the forestry extension effort.

Enthusiasm for short community level training programmes given either at central locations or at community centres.

Identification and selection of forestry extension assistants where necessary; quality and commitment of those selected.

Initial experience in developing tree nurseries or other field works.

Commitment of specific areas of land to forestry activities.

Co-operation of livestock keepers with the forestry extension plan.

Interest and enthusiasm of school pupils and teachers in trees.

Supervisors' reactions to community visits and assessment of extension staff's performance.

Evaluation of the community's understanding of their plan and how long it will take to achieve.

Present ability of the community to use scarce resources.

Ability of the community to resolve conflicts and disputes arising amongst themselves from community forestry planning.

The community's assessment of the extension staff and assistants.

Ability of the community to discuss forestry extension goals and objectives in their own terms and in the context of their area.

Headquarters data

Quality of support for field staff; replies to communications, visits to field, provision of logistical support and encouragement.

Attitudes towards information received from the field and suggestions for improving the overall conduct of the programme based on initial community contacts.

7.3.4 Impact stage

The impact stage comes when forestry extension production activities are in progress at various locations. This may also be called the implementation stage, since all of the effort which has gone into planning, training and the provision of services, is being put to use. The contact and impact stages are closely related, but evaluated differently. The key question is: Are the goals and objectives of the programme being met?

Field data

Planting and caring of trees by the community: numbers and quality (or any other relevant criteria depending on the objectives).

Percentage of the community active in implementation of the programme (if relevant).

Reasons for the current level of participation.

Amount and kind of programme expenditures in the project area.

Amount and kind of contribution to the programme by the community.

Amount and kind of advice or information provided to the people on technical topics.

Frequency of forestry extension activities each month.

Number of requests for assistance from non-programme communities.

Amount and kind of harvesting or use of wood from programme activities.

Amount and quality of media materials: training, community level, mass media.

Nature and recommendations of community level evaluation of the programme.

Reports and opinions of community level extension staff and assistants.

Observations of district forestry extension staff.

Amount and kind of co-operation with other extension programmes.

Training courses provided for the staff and the community.

Number and reasons of staff transfers in the field.

Projected work plan and costs for next planning period.

Adequacy of funds available for field programme.

Specific assessment of programme objectives and suggested revision by the field staff, the people, district staff and neutral observers, after proper review and consideration.

Quality and amount of contact with headquarters.

Quality and kind of support sought from and provided by headquarters.

Unexpected events beyond the control of the community and the extension staff.

Overall improvement in tree or wood related ecology and living standards, or other relevant criteria.

Headquarters data.

Financial analysis of field work and headquarters expenditures: amounts, kinds, cost over-runs or under expenditures.

Amount and kind of information available about community level programmes.

Reasons for personnel transfers in the field.

Orientation to forestry extension implementation programmes provided to senior staff and policy makers.

Expected expenditures for next planning period: local and NGO contributions.

Attitudes of NGO donors towards the forestry extension programmes they are supporting.

Outside evaluation experts' views on the total programme.

Comparison between headquarters' and field staffs' views of programme.

7.3.5 Residual stage

Long-term effects are measured in the residual stage. They seek to measure the long-term effect when the programme becomes a routine, area-wide service, or has been phased out, leaving the people to maintain the community forestry activities themselves. In the periodic rise and fall of social programmes and projects it is often difficult to measure the residual effect after five or ten years have elapsed since the official closing of a project, or withdrawal of support for a programme. However in some instances continued terracing, green belts, community enforced forest reserves or household woodlots remain as evidence of programmes initiated many years ago. Where a renewed interest is taken in age-old concerns to preserve the environment, the residual stage blends into the programme appraisal and planning stage of a new programme. Often the new programme planners are unaware of this cyclical occurrence.

The key question is, what kinds of forestry extension activities continued and what was the overall effect of the programmes following the ending of formal forestry extension support by the government or NGOs.

Field data

Which programme activities have continued? What amount and kind?

Amount and kind of continued government or other institutional involvement in these activities at community or district level.

Positive and negative ecological effects of the programme.

The community's impressions of the programme: their overall assessment.

Willingness of the community to undertake further participatory community development activities involving trees, forestry and land use.

Observations of district and field staff about past efforts.

Willingness of forestry extension assistants to pursue activities on a voluntary basis.

General appearance of the programme area.

Headquarters data

Observations by senior staff of programme's effects on policy makers' attitudes to forestry extension programmes.

Budgetary support for forestry extension programmes: local and NGO contributors.

Amount of training funds devoted to forestry extension activities.

Staff levels for forestry extension activities: field and headquarters.

7.4 Evaluation by the community

The evaluation of programmes is frequently left to experts from outside the programme or to senior staff members. Many times the only contribution from the community level staff is the often overlooked monthly reports. Detailed field visits by headquarters staff, or meetings of field staff at headquarters, where their opinions are sought, are not common. It is even less common for members of the community involved to be invited to take part in evaluating their own programme. In the past few years, however, this evaluation has begun to be part of the community development process. The field staff and the people themselves are expected to contribute to the assessment of:

- how realistic are the goals and objectives;
- what are the accomplishments to date and the difficulties experienced;
- how can improvements be made?

This is a logical development, since it makes little sense to expect full co-operation and participation in long term forestry extension programmes by the people and then ignore their views on these programmes. Community participation in the evaluation process may make it easier to take corrective action when a programme is in difficulties. It will have the effect of increasing the people's involvement and responsibility for making the programme work.

Evaluation by the people, in common with professional evaluation, can run into difficulties and may end up by producing destructive rather than helpful criticisms. It is necessary to consider some of the ways to make it fully constructive. The best approach is to try to build specific, constructive, evaluation procedures into any community programme undertaken. They include the procedures listed below.

7.4.1 Training courses

Did they succeed in teaching something worthwhile?

Were they either too long or too short for their purpose?

Can the members make use of the material they learned?

7.4.2 Preparation of media material

Have the people learned anything from these?

Did they generally prove to be attractive?

Were there any ambiguities in the information or advice given in them?

Are the materials and their contents realistic and relevant to the area?

What changes, if any, could be made to improve them?

7.4.3 Meetings of various committees

Are the committees doing the job for which they were set up?

If not, what are the reasons for this?

What are the problems or constraints?

Have they recorded any notable successes?

Are there any particular reasons for these?

7.4.4 Community meetings

Does everyone taking part understand the aims of the programme?

Can anything be done to improve understanding and acceptance by the people?

What is the roll of the extension staff, and the community, in these?

7.4.5 District level extension staff visits to the community

What can the programme staff do to encourage the community?

What are the difficulties encountered by community level extension staff?

Can participation by the community be improved, if so, how?

What are the limitations of the programme?

What are its future prospects?

By learning to evaluate a number of small parts of the forestry extension programme, people learn how to evaluate the whole effort, constructively and responsibly. Extension staff need the same sort of experience. They must also learn how to guide evaluation activities with the community so that these occasions do not simply become sessions to vent general frustrations. The focus should be kept on the programme and not on personalities. Some questions which may be investigated are:

- what was intended;
- was it realistic;
- how is it succeeding;
- how can it be improved;
- is this the right time to do a particular task, or should it be deferred;
- what resources, if any, are not being used;
- are there any ways of doing certain things better;
- what are the bottlenecks;

- are they avoidable;

- can the people solve the problems themselves or do they need help?

If these questions are asked while the programme is in progress, when an overall evaluation is later conducted by another body, the people will have experience in dealing with such questions and be able to assess constructively their role and that of the extension staff in the activity.

There are some things which inhibit forestry extension programmes, which only the people may be able to identify and possibly change. These include long held beliefs about trees which might concern taboos against using or planting certain kinds of trees, places where trees cannot be grown for religious reasons, or reasons for not planting trees at all. For example, a people's belief that owls are precursors of death may dictate that no trees should be planted, so as to avoid places for owls to rest or breed. Social, cultural, and political reasons may or may not come out in people's participation in evaluation, but without their involvement many evaluation questions would either remain unanswered or be incorrectly answered.

The role of the extension staff in promoting participatory evaluation is crucial. If staff members take a "we versus they" attitude, as is unfortunately rather common, then both the concepts of planning and evaluation through participation will be weakened. The role of the person in charge of forestry extension in the district is critical in making sure that a constructive attitude of co-operation is established.

7.5 Making use of monitoring and evaluation information

It is not sufficient on its own, to compile monitoring and evaluation information. Somehow the information must be made to strengthen the programme, teach lessons, and provide all the people concerned whether in headquarters, the field or the community, with an accurate assessment of how well things are going. Several questions can contribute to making the data useful:

- how accurate and reliable is the monitoring and evaluation information? Who collected or assembled it;

- can it be trusted;

- does the information give new insights about the programme, or does it reinforce previous knowledge and views;

- are the right conclusions being drawn from the data, or are the data being forced into the direction needed to confirm some preconceived idea;

- how can the information be converted into specific, constructive action through well prepared recommendations;

- what is the best method to make the results of the monitoring and evaluation known to all concerned?

7.5.1 Accuracy

One way of finding out if information is reliable or not is to have several independent sets of data available for comparison. This, however, is not normally easy to achieve in the conditions under which a great deal of

forestry extension work is carried out.

An alternative method is to have one set of data gathered by someone who has a good record of accuracy. In the first method, information from supervisory field staff, community extension staff and the people themselves is compared for similarities and differences provided there are good grounds for believing that all of it is equally reliable. If there are differences on key issues, particularly between the people and extension staff, it may be necessary to follow up with assistance from a neutral observer, a person familiar with field evaluation issues but not directly connected with the programme. Sometimes a review of conflicting information will reveal ambiguities in how it was collected, the wording of questionnaires or reports, or even mistakes in tabulation. In some cases the information may not be valid, that is, it may not apply directly to the key issues affecting programme performance.

In any case it must be possible to trust the information before any use can be made of it. If the data from each source are believed to be accurate, but still in conflict, the neutral observer must then make his or her own independent observations and assessment.

7.5.2 New insights

Evaluation data collected at one time from a single community may not tell anything that is not already known. Data which indicate patterns and trends from a number of communities over a period of time are the most useful for programme staff. Corrective action may be possible for trends considered to be negative (such as falling off in participation, inadequate numbers of plants available etc.); conclusions from positive patterns can be used to improve future activities. Many times information will repeat itself from evaluation period to evaluation period. (e.g. "Lack of transport inhibited action on this subject".) It shows that a problem exists, but that little can be done, or is being done, about it. Occasionally, an insight may come in solving a difficult recurring problem. Sometimes evaluation data will reveal difficulties which an experienced person knows will sort themselves out over a period of time, or that by taking certain action the difficulty can be corrected. Some understanding of the learning curve theory is important at this stage. This theory states that people make rapid progress in learning initially and in time reach a plateau after which learning proceeds slowly until a new stimulus starts a stage of rapid learning once more. This pattern is often noted in community development projects and the skill to detect when this is occuring and to recognise the new stimulus necessary to start rapid learning again is a valuable contribution from any evaluation procedure.

7.5.3 Drawing correct conclusions

It is not hard to interpret data to give results favourable to one viewpoint or another. It is possible to ignore some information, or give it very little weight, and at the same time give greater importance to other items. In this way particular viewpoints can be backed up by what appears to be reliable data from the field. If data are distorted to support a particular view, problems may remain unnoticed for some time but they will inevitably come to the surface. The purpose of evaluation is defeated when information collected is not used in a strictly unbiased way. It is the responsibility of policy makers and headquarters staff to allow field staff in particular to give their honest assessment of programme operations. This is difficult to achieve as the comments of the field staff may at times appear to reflect on the competence or willingness of headquarters staff to support field operations adequately. It is unfortunate that some bureaucrat-

ic organisations do not tolerate admissions of mistakes or deviations from expectations and thereby induce staff members to create false impressions of the progress of their work.

7.5.4 From information to recommendations

Poorly written recommendations waste good data. Information such as the following may be collected. "The reports from the field indicate that headquarters is not informing field staff about certain kinds of equipment which can be supplied to them for distribution to the people. Other data suggest a pattern of poor communication from headquarters to the field". This may appear in a recommendation as, "Headquarters should improve communications with field staff". While this is a true conclusion from the data on hand, it is of little value as it indicates no specific way in which communication has been defective nor does it recommend any possible steps to improve this. A specific recommendation such as, "Headquarters staff should review lists of stores currently available for field support. They should issue a report to field staff indicating what equipment is available and how it can be obtained. Deadline for implementation: 15th June", may be made. Care must, however, be taken about presenting a recommendation in such a direct manner. The person presenting it must consider if he or she has taken into account fully the problems faced by headquarters staff in compiling and circulating such information on the schedule recommended. The formula for writing good recommendations is similar to that for writing good objectives: Who is supposed to do what, in which place, at what time. If sufficient time is taken to translate data into specific recommendations, there can be little excuse for inaction because responsibility and a timescale for action were not clearly indicated. A person carrying out an evaluation must, however, never forget that his brief is to make recommendations; it is not to issue orders. Recommendations issued in a very dogmatic form are likely to antagonise staff and are more likely to be ignored. They may serve no more purpose than vague or very generalised recommendations. The art of presenting recommendations in a way that they will be willingly accepted and quickly acted upon is one which still eludes many evaluators.

7.5.5 Making evaluation results known

Most evaluations are written with donor agencies, headquarters staff, and policy makers in mind. Few reports either include evaluation by the community concerned or are addressed to the community.

One problem with evaluations, and a reason for their generally negative reception by field staff, is that a great deal of activity and anxiety go into data collection for the process, but few who contribute to this see the results of their work. Fewer still have the opportunity to meet and discuss the recommendations, to draw attention to areas in which they may be based on doubtful information or conclusions, or suggest how they might be put into practice. Evaluators are not necessarily infallible and their recommendations are always worth careful scrutiny by those most closely affected.

In manufacturing industry it is a common practice to seek suggestions on processes or procedures from workers on the shop floor or in the first levels of management. Their close connection with the day-to-day work is considered to be valuable in detecting possibilities for improvement. Substantial cash incentives are often offered for usable suggestions. In public organisations much less use has been made of this procedure and the talents and insights of employees are not often made use of in this way. A review of an evaluator's recommendations would appear to be a suitable time to draw out employees' views on how improvements in performance could be achieved.

The field staff and the community concerned should receive some form of report which is relevant to their role in the programme. This means restructuring the traditional report designed for study in headquarters only, to include specific sections which can be taken out and made known to the field staff and the community. An honest exchange of opinions and views will make future work more clearly understood by all. There may be strong challenges to some of the conclusions and recommendations as a result of the report being circulated in the field. People may agree with the data but disagree with the conclusions reached by the evaluator. These views should be expressed within a positive framework of communication, discussion and hopes for improvement.

Some evaluation reports, or at least parts of them, may need to be restricted to those directly involved. Personnel issues, for example, should not normally be circulated widely. Similarly, a planning officer may wish to withold some information about the maximum funds available for a project to discourage any over generous use of the funds at one particular stage. Whether this particular action is ethical and likely to run counter to the concept of helping people to take responsible decisions about their own future is open to question. In general, however, discretion on evaluation of funding and personnel matters should be exercised.

7.6 Outside evaluation specialists

When major evaluations take place involving both headquarters and field operations, particularly those funded by external aid agencies, the question arises of whether or not to engage an outside evaluation specialist. The person need not be from outside the country, but should be from outside the programme and the sponsoring agency. A knowledgeable, independent, observer with experience in evaluation methods and studies can often provide a useful review of the programme. This is especially true for programmes having difficulties, or which want to expand but are not sure about their future direction. A period of self-evaluation should, however, precede the decision on whether or not to engage an outsider. It may be that the period of self study will clear up any difficulties and provide insights into both the problems and possibilities of solutions. It will also avoid the cost of employing an outside expert which can be heavy.

The evaluation specialist should be provided with a complete job description and terms of service. All parties concerned can then understand the role to be performed, the procedure to be followed, and what will be provided during, and at the end of, the agreement. Some programmes may not want evaluation specialists to draw up recommendations. They may simply require a report on the state of the programme, which draws conclusions from the data collected by the programme staff or by the evaluator or both.

In selecting outside evaluators as consultants it may be useful to review previous evaluation reports written by the person under consideration for the post. He or she may be highly regarded in academic circles but be unable to communicate practical ideas and specific suggestions directly, simply, and in a form likely to gain acceptance. Community-level evaluation may not be part of that person's philosophy. If a confidential evaluation is required, an evaluator must be able to demonstrate a firm commitment to confidentiality and a good record of discretion.

Evaluators with practical experience of work in the field will be more likely to understand difficulties in field programmes and tensions between field and headquarters staffs. They will want to see the overall picture rather than dwell on small things which are considered a normal part of life in the particular country. To get the best results from an evaluation it is

necessary to assign suitable local staff such as a driver and typist to be available for duty when required. Previous reports, relevant files, field reports and newspaper and publicity material on the project should also be available for study.

7.7 Summary

Evaluation can be a positive part of a forestry extension programme. With the assistance of the community and the field staff, there can be a better understanding of the state of the programme through simply sharing opinions, ideas for improvement and thoughts for future action. The five stages of programme planning and implementation give the opportunity for field evaluations on a number of occasions without waiting for a formal outside evaluation.

Deciding whether an outside evaluator should be selected or not depends on the importance of the evaluation, the presence of controversy, the ability to bear the expense, and the role of external donor agencies in the programme.

8. MATCHING STRATEGY AND STRUCTURE

8.1 Introduction

An extension strategy is a set of ideas on how to achieve specific development goals. The earlier chapters have considered procedures which should help to establish a rural development strategy, to be implemented through a forestry extension programme, designed to reverse the process of deforestation and make available to rural communities the benefits from the proper use of increased forest resources. However, the existence of a strategy in itself does not ensure that development goals will be achieved. People and material resources must be organised and set to work. It is the task of an extension organisation to put these resources to work.

8.2 Strategic management

A forestry extension strategy requires that change must be brought about by members of the rural community and their own community groups. An extension organisation cannot tell a community what it should or should not do. It must encourage them, however, to determine their own development goals and to design their own activities to achieve them. Therefore, the demands that communities may make on an extension service cannot be forecast with certainty, nor can the way the community may behave be forecast with complete accuracy. For this reason, an extension organisation must not insist on fixed long range plans which assume that development will follow a predictable pattern in each community. In the same way, the administrative structure must be flexible and avoid a very formal, goal-orientated, bureaucratic model. The extension organisation must have the flexibility to respond to the requirements of the rural community while at the same time having the ability to teach the members how to set goals which will lead to development.

Building an extension organisation capable of putting ideas into practice is a considerable management task. Officials must consider:

- the available resources;
- the values and attitudes of the extension staff;
- the management of the available resources and staff to secure the best results.

8.2.1 Resources

The first task of a designer of an extension organisation is to determine the amount and quality of material, financial, and human resources, that can be mobilised. An extension strategy cannot be put into effect without sufficient staff. It may also need resources such as buildings, equipment, and vehicles. The money to pay for the people and material resources required must be secured. While resources do not guarantee a successful extension service, they do make success more likely. On the other hand, a lack of resources is likely to lead to the failure of an extension activity.

At the present time, many countries have no forestry extension staff. Moreover, forestry administrations in many developing countries are understaffed. A forester in a developing country may have the difficult task of looking after 100,000 hectares of forest while in developed countries 10,000 hectares are considered the maximum an individual can manage. Under these circumstances it is understandable that some extension strategies adopted in developing countries have failed. The forestry administrations in these

countries, in many cases, do not even have adequate resources to manage public forest land properly.

It is pointless, therefore, to develop an implementation policy without resources. However, limited resources can be used successfully if they are concentrated on a limited area, and used in pursuit of limited goals. Trying to spread scarce resources over a large region is most likely to result in failure. Resources can be concentrated in a selected geographic area, on specific communities, or directed towards selected groups or individuals within a community. Initial, small-scale successes can help to secure more resources to develop further extension activities.

The mobilisation of resources is not a task to be undertaken only by the highest levels of an extension organisation. It is a problem that must be tackled at every level. It is a vital matter for extension staff serving in the field without much support from above. Such staff must use their own energy and knowledge to persuade local organisations and people to work for forestry goals they have themselves identified and to supply the resources required. Extension staff may also have to use all their skills to persuade government agencies and voluntary organisations to provide adequate support for extension activities.

By training extension staff in mobilising resources and by approving a variety of new ways to bring together both people and other resources at the local level, an extension organisation may achieve considerable success without very great expense. However, the general principle to be followed by each level of an organisation involved in extension work is: the more resources that can be mobilised and put to work at the next lower level, the greater the likelihood of the success of a programme. The more technical knowledge, time, energy and material resources that can be provided to the local community, the greater the likelihood of success. The greater the number of extension staff a forestry administration can provide, and the better their training and their material support, the greater likelihood there is of operating a successful extension programme.

8.2.2 Values and attitudes

Managers of extension organisations must also take into account the values and attitudes which affect the actions of extension staff and determine how they deal with the rural community. The values and attitudes implicit in a carefully prepared forestry extension programme must be accepted and adopted by all the employees. In practice, trained foresters are likely to favour tree growing and increased yield, and this provides a basis for the development of sound extension values and attitudes.

There are a number of traditional views which must, however, be changed. One is the belief that the role of a forester is mainly that of control, ensuring that people do not violate forest laws. However, when employed on extension tasks, a forester must encourage positive behaviour rather than merely trying to prevent people committing offences. He or she must adopt the role of an innovator rather than that of a bureaucrat.

In general, the outlook of the staffs of forestry administrations has tended to be narrow and confined to their special responsibilities. However, a proper forestry extension strategy and organisation requires that a forester's vision and understanding should extend beyond the trees to take in all aspects of rural life.

Another traditional view which must change is the common belief that the use of complex modern forestry technology is the best way to solve the forestry problems of the rural community. In fact, traditional methods and simple technology may work better in rural communities, for a variety of reasons. Finally, forestry authority staff must avoid the assumption that their main task is to produce a net income for the government. The principal aim of forestry extension is to increase the income of rural communities.

Resources will be wasted unless proper attitudes and values are adopted. Undesirable attitudes unfortunately are common in many public bureaucracies, and the likelihood of spontaneous change is not great. Some ways to facilitate attitude change have been discussed briefly in this publication. Initially the adoption of new attitudes is easiest within small groups of public officials interested in the ideas of extension, who maintain close working contact with each other. At later stages, as an extension organisation grows, these core groups can promote their new ideas from key positions within the forestry administration.

8.2.3 Management

The main components of an extension organisation are its staff, their attitudes and values, and material resources. However, new people must be recruited and trained if the organisation is to maintain and expand its activities. Rural communities must be provided with services in exchange for their co-operation. These are the outward signs of effective management of a forestry extension organisation.

Management is the art of putting resources to effective use. Bad management wastes resources while good management prevents employees from becoming indifferent to their tasks or developing negative attitudes towards the organisation and its goals. Where bad management exists, selfish interests can replace a commitment to the objectives of the organisation.

Unfortunately, some forestry administrations suffer, like other public institutions, from problems of corruption, lack of initiative, waste of resources, and a general inability to conform to development plans. Good management can help to overcome these problems to a large extent, although the problems themselves may stem, in part, from a general lack of resources, from cumbersome legal systems and service regulations, or other factors beyond the control of the managers of the organisation.

The first requirement for good management is, obviously, the selection of competent people to fill key positions. There are also modern management techniques which if widely applied could improve forestry administration and extension. Some of these new techniques are discussed in Chapter 9.

Traditionally, a forester employed by a public administration has been a "super-manager". That is, the initiative for all activities came from within the forestry administration, and the forester controlled all the resources and was responsible for implementing all the programmes. In an extension role, a forester becomes a "meta-manager". A meta-manager does not control all the forestry activities himself, but rather, creates favourable conditions for others to carry out extension tasks. As meta-managers, forestry extension staff must determine any reasons why rural people do not engage in forestry activities, and then try to remove obstacles and provide support where it can promote the positive action from others.

8.3 Analysis of the strategic situation

A major goal of forestry extension is to increase rural incomes and eliminate poverty through improvements in productivity of the land and the provision of useful work in rural communities. As has been stated, a development strategy consists of a number of ideas to achieve this long range goal. A strategy contains a number of secondary goals and targets, and proposals for specific activities designed to achieve these goals.

8.3.1 Protective forestry

One strategy in forestry is the protection of existing woodlands. These areas must be protected from intrusion, theft and other threats. An organisational structure is needed to implement protective forestry, which requires guards and supervisors. Moreover, this structure functions best in a particular environment. The ideal environment in this case is a closed, well marked and uninhabited forest area. A balance must be achieved between strategy (protective forestry), structure (guards and their supervisors), and the environment (an ideal, closed forest). Fig.8.1 illustrates this balance. The lines drawn between the components of this strategic situation mean that they are interacting in a workable whole.

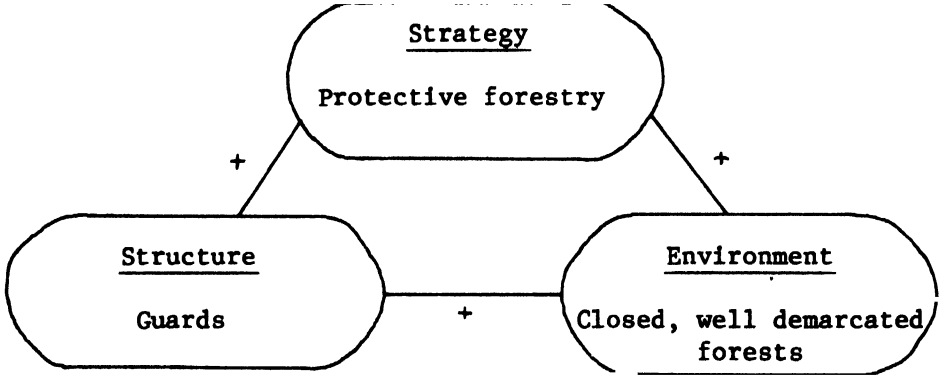


Figure 8.1 Illustration of how strategy, structure, and environment are related.

8.3.2 Production forestry

In 1976, India's National Commission on Agriculture suggested new strategies for forest development in that country.* One of these new strategies is called "production forestry". The goal is to supply raw materials to forest-based industries. Man-made forests are established and yields from productive forest land are increased through investments, as well as through improved, and more intensive, land management. The potential for a dramatic increase in forest yields is illustrated by the fact that West German forests generate 25 times more gross revenue per hectare than Indian forests. The Commission decided that the traditional conservation orientated Indian Forestry Department was not suited to implement the new production

* The analysis of the Indian situation is based on Kamla Chowdry, "Forestry Development: Strategy and Structure", presented at the FAO/SIDA Consultatation on Forest Administration for Development, Rome, February 1983.

forestry programme. Special Forest Development Corporations were established in different states. These FDCs were designed to be more flexible in order to implement the new strategy (see Fig. 8.2).

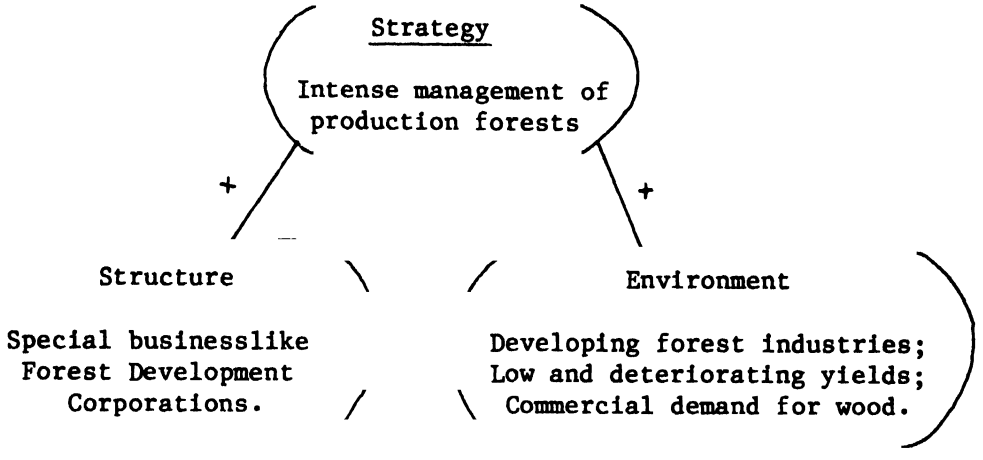


Figure 8.2 Strategic situation of production forestry in India.

As stated earlier, an organisational structure must match the chosen strategy. However, despite the fact that the FDCs were designed to match the new Indian forestry development strategy, they have experienced great difficulties.

The main problem has been in the choice of corporation personnel. An organisation consists of more than a formal statement of responsibilities and functions. People are key components in an organisation. In the case of the FDCs, members of the prestigious Indian Forest Service (IFS) were assigned to fill posts in the corporations. These civil servants were not permanently transferred to the corporations, but remained in their IFS career structure. As a result, they were more interested in securing promotions within the Forest Service's state and national offices than in building the new corporations or implementing the new development strategy.

Under these circumstances, it is understandable that some managers did not identify with the goals of the corporation. Moreover, these professionals had been trained in the traditional techniques of forestry conservation, and continued to think and act accordingly. For example, money budgeted for certain corporations, as well as the revenues generated by others, were not invested in forest improvement, or closely monitored.

The flexible, business-like management practices necessary for market-orientated, production forestry were not developed. Instead, the hierarchical and rigid command structure of the Forest Service was transferred to the new corporations. The lack of innovative management led to poor administration of corporation projects, dissatisfaction amongst employees and disappointing results.

The Indian experience clearly demonstrates that a new development strategy, and even new organisational structures, do not necessarily guarantee that change takes place. An organisation is made up of many parts,

all of which must be consistent with the development strategy and the overall environment where development is to take place. Inertia is often introduced into new organisations by people whose training is geared to other types of organisations, many with very different development goals.

8.3.3 Social forestry

Another development strategy formulated by the Indian National Commission on Agriculture is called "social forestry". It is aimed at meeting present and future fuelwood, fodder and small timber needs of rural communities. Social forestry is directed at lands not under the control of the public forestry administration. These include wasteland, panchayat lands, village woodlands, and areas bordering roads, canals, and rail lines which can support tree plantations. However, in this case the Indian government did not set up a separate organisation to implement the strategy, and the state forest departments on the whole have had difficulties in getting the rural people to participate in social forestry schemes. However, new organisational solutions for supporting social forestry are now being developed at both central and state levels.

8.3.4 The organisational problem

The main challenge to strategic management is to set up an organisation which matches the forestry extension strategy, and which at the same time meets the needs and the requirements of the poor in rural communities, which is the environment within which the organisation must act. This challenge is depicted graphically in Fig. 8.3.

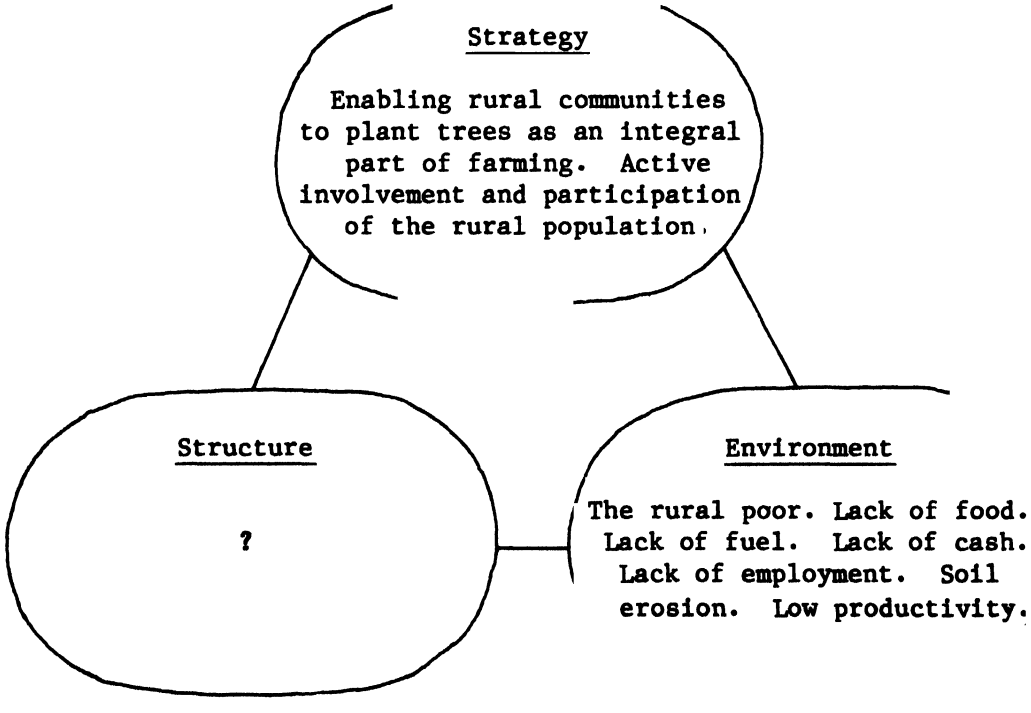


Figure 8.3 The organisational problem

The triangle drawing is a conceptual device to test whether alternative organisations match a particular development strategy and a particular "environment" of available human and material resources. A mis-match between any of the three elements can be spotted and corrected using the triangular representation of the strategic situation.

The Paper Industries Corporations of the Philippines (PICOP), which operates a smallholder tree farming programme, provides a good example of a well matched combination of strategy, structure and environment. The environment chosen consists of the rural poor who are willing to work hard, and a nearby pulp plant which requires a stable supply of wood. The strategy envisaged the rural poor establishing tree plantations, while the pulpmill was intended to guarantee good prices and a secure market for the wood produced. An extension structure was set up to help farmers obtain access to land and financing, as well as to provide plants and technical advice.

The matching of structure to strategy is not as simple or free of problems as it may appear in Fig. 8.3. A forestry extension strategy must take into account the specific and sometimes unique circumstances in individual countries and separate communities. The general guidelines for strategy formation discussed in this and in a later chapter, (Chapter 11, section on policy and plans) must always be adapted to local conditions.

Strategy formation should not be confined to policy makers and top-level forestry managers. It must take place at every level in the public forestry administration. Managers and extension staff must develop a strategy which is suitable for the region where they work, but which is at the same time in line with the national forestry development strategy.

It is necessary to understand the social context within which development is to take place, in order to design a successful forestry extension programme. Extension staff and forestry administrators from geographically different regions, with a different mother tongue, and who are educated, healthy, and financially secure, may have little innate understanding of the "environment" of the rural community in the area in which they serve.

Just as all extension staff must formulate a specific strategy for specific regions, they must also adapt extension organisations to the local environment. For example, Village Forestry Committees which take responsibility for all community forestry activities are a part of the Korean forestry extension organisation specially suited to their specific conditions.

8.4 Stability and change

8.4.1 A traditional forestry department structure

A traditional forestry department structure is shown in Fig. 8.4. The structure is hierarchical, with the Chief Forest Officer at the apex of the organisation. Regional Forest Officers who direct a number of District Officers occupy the next level. The Forest Districts are divided into Ranges which are managed by Rangers. A Ranger may direct the activities of Foresters who are in charge of smaller areas within each District called Beats. The Forester supervises a number of Forest Guards who are sometimes recruited from former soldiers, and who may, in some countries, be armed. Forest Department personnel may in certain countries be reinforced with military units under military commanders who co-ordinate their activities with forestry personnel.

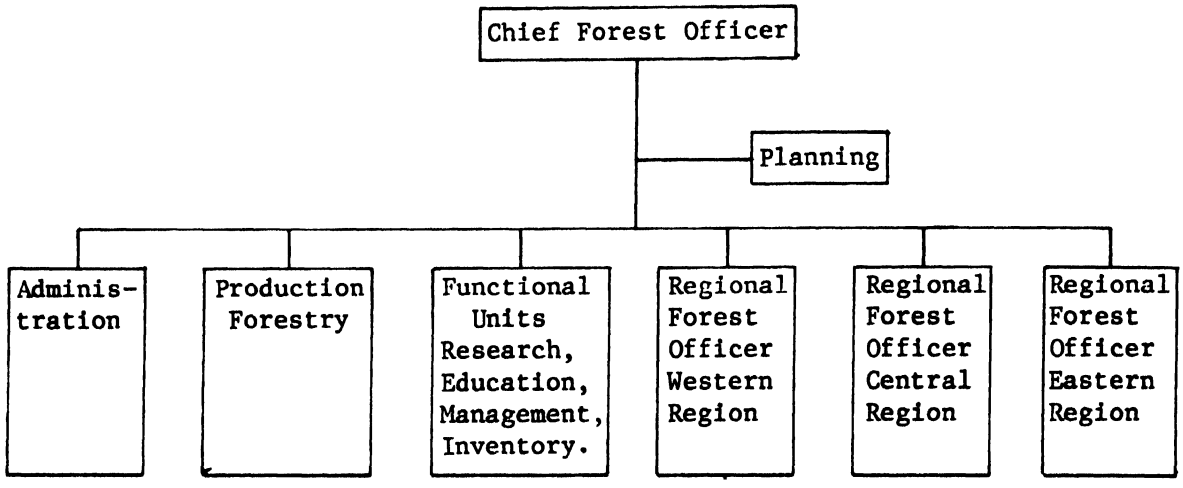


Figure 8.4 A simplified organisation chart of a traditional forest department

The officer corps which operates the Indian Forest Service is an example of the kind of professionals required for public forestry administrations. Aspiring Indian forest officers are trained by senior foresters at professional colleges, such as Dehra Dun. Knowledge and experience are passed on from one generation of officers to the next. A new graduate of a forestry programme is likely to begin his career as an Assistant District Forest Officer. He then serves as a District Officer in various regions, and eventually is promoted to Regional Officer. The Indian model produces great stability and predictability. Not only can all grades of officers simply carry on exactly the same duties as their predecessors, but these duties are also rendered unambiguous and formalised by a series of administrative regulations. The possibilities of a rapid re-orientation of ideas is, however, limited because of this.

In theory, the traditional style of forest department organisation based on geographical areas of responsibility can effectively protect the country's public forest land. Responsibility can be decentralised because each District Officer and Ranger knows exactly what is expected of him. Since every officer has been trained and works as a general manager, there is little need for specialists. Each officer can supervise and co-ordinate the activities of a relatively large number of subordinates as a result of the regional autonomy built into the organisational structure. For these reasons, the traditional structure depicted in Fig. 8.4, is likely to be the least expensive way to provide effective protection for a country's public forest estate.

On the other hand, the very stability which characterises and to a certain extent recommends the traditional geographic and hierarchical structure is also a weak point. Stability quickly becomes a liability if profound changes take place in development strategy or in the social and economic environment where a forestry organisation must operate.

A changing development environment demands a flexible and adaptive forest administration, very different from the traditional forest department. Consider, for example, a forest reserve managed by foresters whose main task has been to mark trees to be cut by local community members and concessionaires. However, in time it may become evident that the forest is no longer regenerating due to increased population pressure and illegal cutting. Obviously, planting must be done. The traditional field organisation, however, may be unable to carry out the new strategy owing to a lack of training, manpower and other material resources needed for active regeneration.

8.4.2 An adaptive structure

Taking the above example one step further, some forests under the protection of the hypothetical forest department described above may actually disappear due to a high demand for fuel, fodder and cultivable land. Changes in the strategy and organisation of forest administration must therefore be made if trees are to grow and provide fuel, shade, soil protection, timber, poles, fodder and other minor forest products to fill the needs of rural communities. The foresters must learn new management and forestry techniques. In areas where forest officers have lost control over public land there is no other solution than to start to work with the people who in effect now control the land where trees should grow.

However, an ideal organisational structure cannot be designed to accomplish profound changes overnight. Change is an ongoing process which takes place over an extended period. Even if a special forestry organisation is set up to implement a new development strategy, like the Indian Forestry Corporations mentioned previously, it is likely to be influenced by prevailing traditional ideas, and will only assume its own identity gradually. For this reason, a forestry extension organisation must be able to do its job while its strategy is evolving. The organisation should be stable enough to carry out specific assignments while at the same time maintaining the flexibility to adapt to new goals and environments, as well as learning from its experience. Designing the extension organisation as an efficient delivery system is one way of achieving this stability. The aim of the delivery system is first to put the extension worker in place in the field and then to provide him with the resources he is to channel into the community which is the receiving system. The resources consist of information, materials and direction. They come from the supporting or intermediate level of the delivery system.

The staff who occupy this level should be placed so they can meet, advise and encourage the field staff regularly. They should have the authority and practical means to provide extension staff with the resources needed. In addition to a supportive component there must be a policy level formulating the policy and plans which are guiding the supportive and operative activities. Depending on the size of the area and the number of people to be served and the resources that can be mustered, the delivery system can vary in size and complexity. Independently of its size and resources, however, a delivery system has to be designed with a view to maximising the extension staff's ability to provide services within the limits of the available resources.

Certain administrative routines must be followed if the delivery system is to function in a predictable way. Work roles must be defined and learned through training. In fact, the delivery system described here could adopt successfully many characteristics of the traditional forestry administrative structure described in Fig. 8.4.

A delivery system is set up using the best scientific and traditional knowledge. It can be managed "by exception" or "by objectives". Management by exception or objectives means that managers trust their subordinates to operate according to established plans and targets. Managers have to step in to take corrective actions (based on their experience) only when plans are not followed or targets are not met. However, any delivery system can be based on faulty or insufficient knowledge, either traditional or scientific. In these cases, management by exception will not correct the basic problem which is faulty planning and objectives, not faulty execution. To uncover and correct basic planning errors the extension organisation must include a learning system which brings about changes in the delivery system, and provides new knowledge.

The basic principle of a learning system requires that field personnel should not be content merely to follow directives from above and fill out standardised reports. Workers also must inform their superiors what is going wrong, and the difficulties they are experiencing in their field work. By the same token, superiors must be willing to listen to what their field personnel have to say. Top managers must be able to accept the fact that their policies and plans may be based on faulty assumptions and information.

Managers must also refrain from blaming their field personnel when expected results are not achieved. Unfortunately, it is not common for an extension organisation to be able to create the trust and frankness necessary to sustain this upward flow of information and suggestions. Nevertheless, providing training for managers in interpersonal communication and employing new techniques of organisational development can assist.

The Japanese concept of the "quality circle" can be adapted to facilitate the communication required by a learning system. Japanese managers and their subordinates meet at regular intervals to discuss problems workers have encountered, and together make suggestions about how to improve performance. Workable solutions which fall within the authority of the managers in the circle are implemented immediately while other suggestions are referred to top management. These executives must consider the problems and solutions suggestd by their subordinates. Under the "quality circle" system, top managers must also meet with the circle to inform employees about corrective steps which are to be taken.

The learning system can also be strengthened through research on both the technical and social aspects of forestry extension projects carried out by universities and independent institutions. "Neutral" officials who are

not affected by the success or failure of projects can carry out formal project evaluations. Management audits can be undertaken by private consultants or by the government's own auditing agency.

The observations made by such "outsiders" must be communicated as new knowledge to the extension organisation. For this transfer of knowledge to take place smoothly, and without making extension workers feel threatened, a spirit of sympathy and mutual understanding must be fostered between the learning system and the delivery system staff.

In addition to written reports, there are several means to transfer knowledge and promote understanding between the two systems. Project achievements can be discussed at meetings and seminars. Staff can be rotated so that those who have worked in research or evaluation can gain practical experience and direct managerial responsibilities in key extension organisation positions. Likewise, extension staff can be assigned to research and evaluation duties for a period.

People who do research and evaluation can also design and teach courses for future extension staff, and refresher courses for workers employed in the extension organisation. As teachers, they also will be provided with a good opportunity to review and question their beliefs. Lastly, the creation of a formal body, a board or steering committee, is advisable. This group should have the power to make strong recommendations on necessary changes in strategy and methods used by the extension organisation.

Fig. 8.5 depicts the interrelationship between the delivery system and the learning system. If the learning "loops" shown in the drawing function properly, the extension organisation will have the ability to make regular improvements in its strategy and operations without precipitating an institutional crisis.

8.5 Networks

Traditionally a forester was a generalist. He was fully in charge in his forestry area. He not only performed all the tasks in the silvicultural cycle, planting, thinning and logging, but also built roads, fought fires, supervised forestry personnel, and performed administrative and legal duties.

Today, forestry extension projects are forcing foresters to come out of the forest. They must work in forest areas whose uses are determined by rural communities. They are no longer in complete charge but must collaborate in a working partnership with the rural community. The rural community is not, however, a homogeneous entity. A forester must build relationships with both the official community groups such as village councils and other non-official, but equally important, organisations such as religious, women's, or youth groups.

Farmers may already be receiving extension advice on agriculture. Different kinds of co-operatives may exist. A forester in his role as an extension worker must establish a working relationship with the agricultural extension staff, the co-operatives, and other local organisations in order to achieve the optimum use of community lands and the resources available for development.

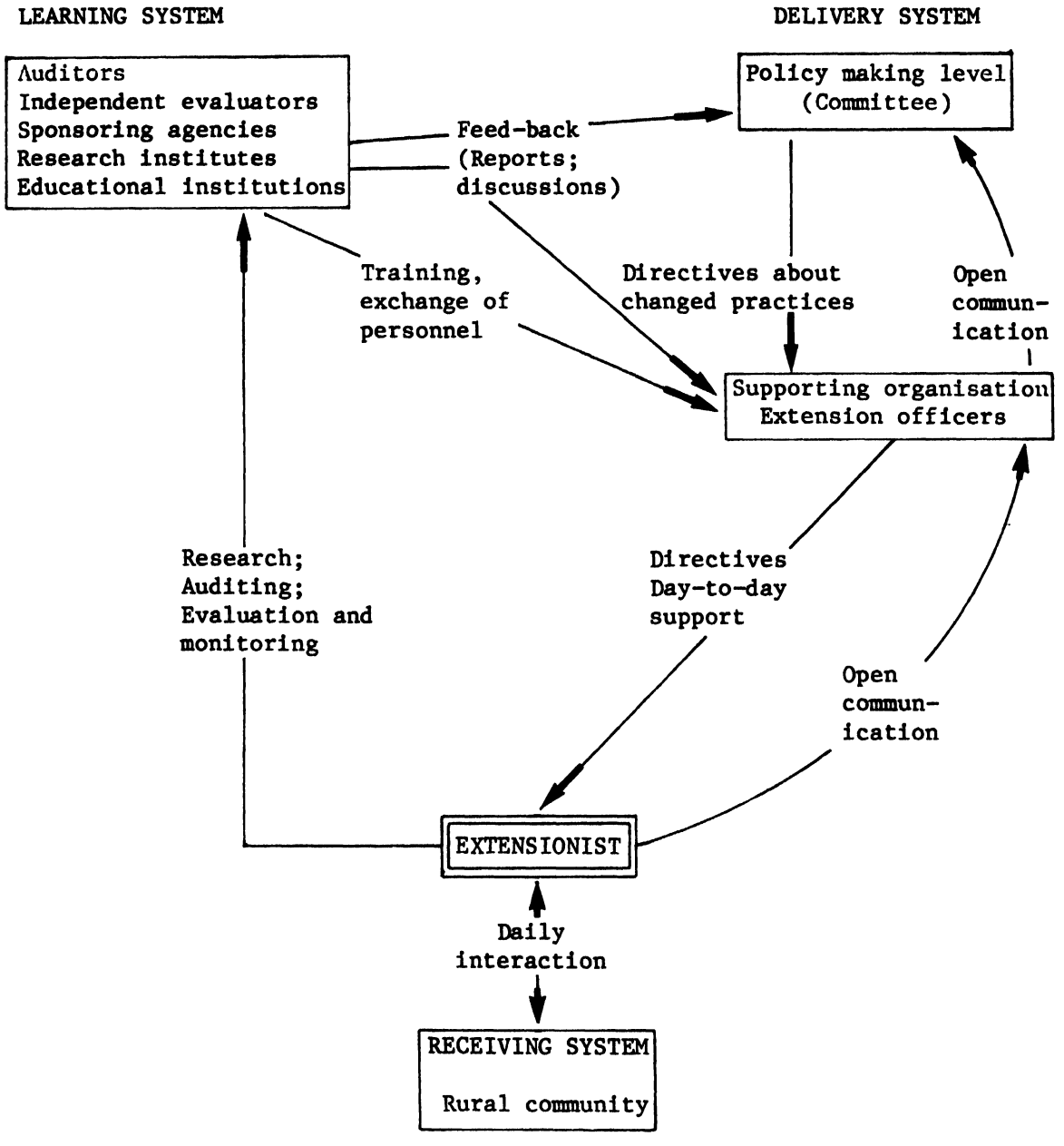


Figure 8.5 Communication channels in an extension organisation with both stability and ability to change

The forestry extension staff must fit into the network of local organisations if they are to implement forestry extension projects. Often this network is not well developed. When this is the case, a forester must actively promote co-operation amongst organisations which are isolated in order to strengthen the local network. In other words, a good organisation structure for forestry is a network of co-operative relationships rather than a self-contained and hierarchical bureaucracy. This type of network promotes the rational use of existing resources, and channels the energy created through ongoing development activities into forestry.

The links which bind various organisations into a network are both formal and informal. For example, when forestry extension staff meet with their agricultural counterparts to discuss points of common interest, they are strengthening an informal link in a local network. The pulpwood delivery contracts between the Philippino smallholders and the PICOP mentioned above are examples of a formal link in a local network.

Clearly the main idea behind a network is to create mutual dependence amongst local groups and organisations with common interests. As has been shown, not only is it to the advantage of the forest administration to establish a close relationship with local organisations, but the degree of co-operation can directly affect the success or failure of forestry extension projects.

Network creation should not be confined to the local level. Co-operation must be established at the regional level with bankers, industrialists, and regional development officials, if appropriate. Finally supportive relationships at the international level can be established with donor agencies, financial institutions, and international agricultural and forestry institutions.

8.6 Summary

An extension organisation is needed to put forestry extension strategy to work. The strategic management task is to obtain resources for extension activities, develop the appropriate values and attitudes amongst extension personnel, and run the extension organisation efficiently. Strategy and extension organisation structures must be compatible. The structure must have enough stability to carry out its extension tasks, but at the same time maintain the ability to learn from practical experience and to change accordingly. Finally, the extension organisation must link up with local, regional and international organisations to form a development network.

9. ORGANISATION STRUCTURE

9.1 Introduction

Chapter 8 dealt with the general problem of matching an extension strategy to an organisational structure to carry it out. It was pointed out that the structure has to fulfil the dual roles of being an efficient delivery system and a system with a capacity to study its own performance and to change and adapt to new situations. It was emphasised that forestry extension staff at all levels have to be meta-managers rather than bureaucrats. They should work to help change the conditions for the community so that it will be easier for them to grow trees and carry out other forestry activities. To accomplish this, it is essential to work through a network system rather than to create hierarchical organisational structures.

This chapter deals in more detail with the problem of creating a normal structure for forestry extension. A design procedure starting from the local field level is suggested. The first choice to be made is to find a suitable design for the local level and for the district organisation. An important consideration in this context is what resources for extension already exist at the district level.

Later, different functions which may be carried out by the central headquarters organisation of the forestry extension service are described, together with some criteria for deciding which functions should be given priority.

Various options on where to locate a forestry extension headquarters are considered. A possible association with agriculture, education, rural development or non-government organisations, and with the public forest administration itself are considered. The more detailed question of which of the structural options that exist for integrating the forestry extension headquarters with the public forestry administration are suited for particular circumstances is also dealt with. The needs and criteria for establishing a regional level extension organisation are also considered.

The chapter ends with a discussion on how the initial organisational design and its distribution of functions must be critically evaluated to determine the degree of centralisation and decentralisation appropriate to the proposed structure. A desirable mix of centralised and decentralised responsibilities can be arrived at by balancing the cost of decentralising specialist resources with the simplified decision-making process which results when local and regional officials are given more autonomy.

9.2 The local level

The local level of the extension organisation has the responsibility of organising and carrying out the forestry extension activities for a certain part of the country, for example, a county or a district. The term district is used here to refer to a sizeable local area which requires a number of extension staff in order to maintain regular contact with the rural population. A professional or senior technical extension officer is therefore usually needed to lead the district organisation and supervise the work of the extension staff.

If a typical Swedish county containing 500,000 ha of forest land is used as an example, a professional forester with about 20 extension foresters under him serve about 10,000 forest owners. The owners are organised into associations which makes it easier to keep in contact with them.

On this scale the local level of the extension organisation has three components: the district extension office, the extension officers and the community. Fig.9.1 outlines the functions of the extension organisation at the local level. The boxes in the chart indicate the functions to be carried out. The policy maker or the professional forester who acts as organisation designer does not necessarily have to fill all these posts initially. However, he does have to think about how and by whom the functions indicated are to be carried out, and how the relationships indicated by the lines on the diagram are to be established and maintained. In some developing countries a much simpler organisation may be more appropriate.

The extension officer is the key person at the local level and is usually responsible for an area containing a number of communities. He or she is the person who shoulders the main responsibility for stimulating interest in forestry activities in the rural communities and supporting development projects. The extension officer has to find ways to encourage and advise rural people in forestry matters and to arrange conditions conducive to forestry.

The district office staff have the responsibility of supporting the work of the extension officers. These support resources should be expanded at the district level as extension activity widens. The resources should include contacts with technical advisors with experience in agroforestry and forestry extension techniques, training facilities, different kinds of logistical support and financial expertise to ensure a smooth flow of finance to the field. Fig.9.1 outlines the relationships between the extension officer and the rural community.

Three basic forms or organisations can be built, simultaneously, or one at a time, as appropriate. These are:-

A network in which direct lines of communication go from the forestry extension officer to a number of extension assistants who organise a number of contact farmers who in turn communicate with other groups of farmers.

Organised village forestry which requires at least the formation of a committee responsible for joint forestry activities. The organisational structure and operational methods necessary to carry out village forestry are quite complicated, as can be seen in Fig.9.1. The organisation does not need to be formalised as a chart on a piece of paper and have people appointed to each function. However, all functions have to be performed one way or another and all the activities have to be co-ordinated. The whole management of organised village forestry could be taken over by a professional forest manager supplied by the forestry administration but in such cases the resulting operations have more of the character of planting trees on communal land than real extension activity.

Unorganised farmers carrying out forestry activities on their own land.

The design of a local level organisation depends on specific local conditions, such as, population density, distances between communities and the main centre, the infrastructure of services available, and the degree of economic, social and administrative development in the area. In addition, the organisational designs and the activities of the extension officer change as the extension programme passes through different phases.

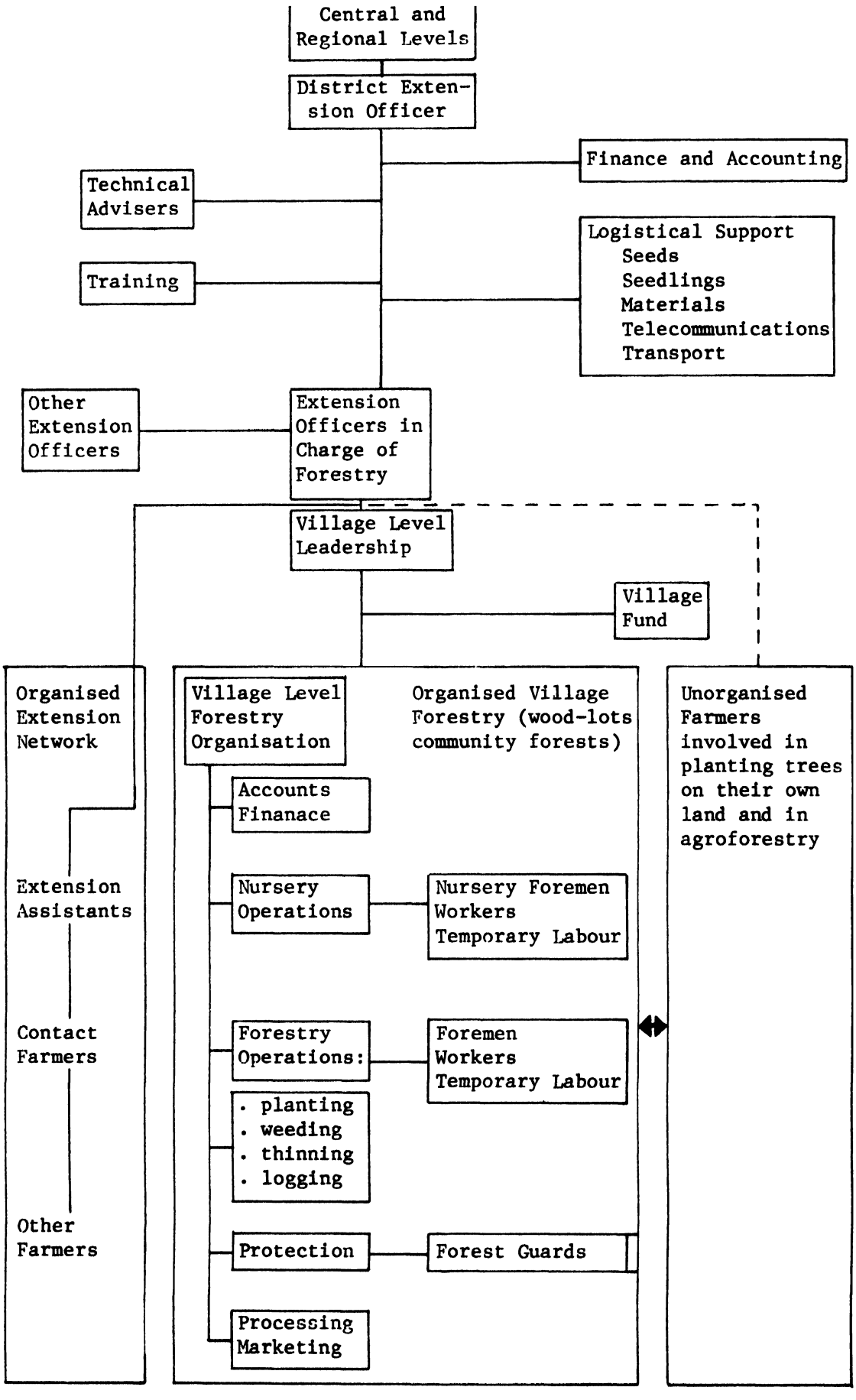


Figure 9.1 The Local level extension organisation
Broken lines indicate co-operative rather than formal relationships.

At the beginning of an extension programme, it is important to create a broad range of contacts and to work intensively with interested people who can serve as opinion leaders and examples to other community members. The establishment of communication channels to local government administration and influential community organisations are also essential at this early stage.

In later phases, when large scale forestry activities are started, the emphasis in the extension officer's work shifts to the logistics of forestry operations. At this point, the extension officer should concentrate on the technical aspects that determine the success or failure of the project.

9.3 How to establish a district office

Within the legal framework of a given country there is usually broad scope for any person or organisation interested in forestry matters to start promoting forestry by organising extension activities in the whole, or in a part, of the country. If this happens spontaneously, policy-makers should give this move encouragement and find out how they can support this development in the best way. In some cases this may simply mean helping to remove any obstacles in their way, while in others it could mean offering to provide certain resources in technical expertise, materials, or funds.

When policy-makers do want to make sure that forestry extension activities are undertaken and want to assign special responsibility and a leading local role to a certain district office there are several options as to what type of organisation to select or establish for that role.

They may

- set up a specialist district level forestry extension service;
- give the responsibility to the existing district forest office;
- utilise an extension service covering general rural development;
- use an extension service in one of the sectors of agriculture; or,
- set up a project organisation.

It is suggested that the options are investigated in the order of priority listed above. Even if a specialist forestry extension service usually is the best alternative for any district, provided resources are available, it should be noted that a uniform type of district organisation does not have to be chosen for a whole country. For example, in areas where most of the land is agricultural and no significant forests exist, the resources of another extension service may have to be utilised for forestry extension, while special units formed for forestry extension may be more appropriate for mountainous or mainly forested areas. The five different options for organising forestry extension at the district level are discussed below.

9.3.1 A specialist district level forestry extension service

Characteristics: This requires a workforce dedicated to extension forestry consisting of a number of forest extension officers each serving a certain group of clients in one geographical area, and one or more staff at the district level who support and

co-ordinate their activities. The persons recruited should preferably be diploma or certificate grade foresters with special training in extension forestry.

Rationale: The deployment of a dedicated, specialist staff ensures that forestry aspects are given proper attention. A forestry background is essential to enable them to give sound technical advice. It is easy to provide these staff with extension material and appropriate training courses. Their particular interest in forestry matters focuses attention on this aspect of extension amongst the community. This is important when forestry and tree growing are only of limited interest to the people. In this case it takes a considerable effort to put forestry into a central position in the lives and activities of the rural population. Other agricultural interests have often established their own extension services and forestry is likely to get little attention from their staff when it has to compete for time with their primary interests. Other agricultural extension staff often work closely with established, land-owning farmers, while forestry extension staff may have to work with marginal or landless rural people. In cases where the client group for forestry belongs to different economic and social strata from the clients of other extension services, there are further strong reasons to keep their activities separate.

When to use: This should be used whenever practical and financial means are available to support a dedicated workforce. However, it may not always be necessary to set up a group from scratch. For example, some staff members in an existing forestry administration may be transferred to work exclusively on forestry extension. A voluntary or non-governmental organisation may be willing to provide and train a number of people who are able to work as forestry extension staff.

The main disadvantage with a specialist forestry extension service at the local level is its cost. Before discarding this alternative because of financial reasons, however, the various alternatives to financing the service by means other than the normal government budget should be considered. In addition to the alternative just mentioned above there is the possibility of local community groups taking on the task or of letting the farmers pay directly for the services, for example, when they buy trees at the nursery, or through a loan repayable to the extension service when trees are harvested. These are options suitable only for relatively highly developed and prosperous societies and are not applicable to many communities where forestry extension is most needed.

9.3.2 An existing district forest office

Characteristics: The existing district forest office usually consists of a professional district forest officer and a number of staff with diploma or certificate level training in forestry. Their task is, in some cases, limited to protecting the public forest estate, to supervising concessionaires and the activities of the public, and the enforcement of forest laws and regulations. In other areas the staff may have considerable responsibilities for management of the forest crop and its regeneration by either natural or artificial means. The forest rangers may be given additional training in setting up and running community nurseries, in giving advice to the rural population and in organising training and extension activities,

to undertake their widened tasks.

Rationale: This is to make use of an already existing and perhaps not fully utilised workforce with relevant training in forestry. It makes it possible to use resources already available such as the professional foresters and technicians in the district organisation, the buildings, nurseries, vehicles and other means of communication and the communication and organisational system which already exists between central headquarters and the district level. If, in effect, most of a country's public forest administration is to be transformed from an agency largely concerned with protective forestry to one of extension forestry the location of change may well be centred at the district level.

When to use: Whether or not the present rangers are suitable for forestry extension tasks depends on their relationship with the public, especially those sections of the public which are the target of forestry extension activities. If the rangers have had a law enforcement function which involved pursuing, arresting and fining the very members of the public who will be the main target group of extension activities, a ranger is not likely to succeed as an extension agent. The same conclusion holds if the ranger's main function has been to make sure that the rural population pay fees for access to the forest and for forest products, especially if the fees are not always properly brought to account. Only if there are little or no misgivings amongst the target population about the ranger and his role as a fee collector or protector of state forests, is there any possibility of combining the duties of an extension officer with the other functions of a ranger. In a case where some misgivings do exist it may be possible to alleviate them by:

- orientating and training the ranger to carry out his protective functions by persuasion and advice rather than by the strict application of the law in every case;

- handing over to the care of local people public forest land which has already been seriously damaged, while continuing to act as an adviser to the people who now control it; and,

- securing a large and lasting inflow of money and goods to the people within the area as part of the forestry activities, for example in connection with a major reforestation programme. If the public see the role of a ranger being transformed to that of an agent who can distribute sizeable benefits in return for participation in forestry schemes, they may be willing to change their attitude towards him.

The following support activities are suggested if the existing district organisation is to be retained for extension.

Rangers should, in general, be removed from their former areas of work and be retrained before being posted to an area where they are to function as extension agents.

A new personnel policy should be developed which aims at developing a good working relationship between the staff and the

target population. This may include the staff staying for longer periods of time in a particular area and serving in areas of the country where they speak the language and understand the local customs.

They should wear a new distinctive outfit identifying them as extension staff and they should never be armed.

It may also be possible to change the existing district organisation partially so that some rangers take on only extension duties in areas where extension activities have the greatest likelihood of success, and others retain protective and management functions.

9.3.3 A general extension service

Characteristics: This may be suitable when the main extension service in the district is dealing with all the important aspects of agriculture and rural development in the area. The main organisational principle is that each general extension officer serves a certain geographical area. He is assisted by an extension staff who may, however, be specialised in different fields of work. Since the extension officer is a generalist there may also be specialist officers at the district level who can give advice when necessary.

Rationale: This broad approach permits a close relationship to be developed between the extension staff and the rural people. The staff can develop a full understanding of the farmer's situation and difficulties and are able to give advice which leads to an over-all improvement. This is especially important when it comes to forestry, because the indirect benefits to agricultural yields of planting trees may in some cases be more important than the direct yield from the trees themselves.

This approach is especially useful when there are very close connections between forestry and agriculture, for example, where shifting cultivation is practiced. It is also a sensible way to approach extension where specialist extension services are not sufficiently well developed and where resources, in terms of trained personnel and money, are scarce.

When to use: It can be used when there is an extension service of this type already in existence, either operated by the government, or by a non-government organisation, and where a specialist forestry extension organisation is not economically feasible. If there is no such existing extension service, a joint effort between forestry, agriculture and others engaged in rural development may be considered. A special reason for choosing a generalist extension service may be the overriding need for integration of activities in some tasks, such as the restoration of degraded watersheds.

9.3.4 A specialist agricultural extension service:

Characteristics: In this case the extension officers in the main agricultural activity in the area are given additional training in order to take forestry aspects into account in their work and to carry out some appropriate forestry extension activities.

Rationale: An already well-organised and resourceful extension service may be able to work to achieve forestry extension goals in addition to its normal tasks, especially if the principal product of the area can be improved if forestry considerations receive proper attention.

When to use: This is appropriate if an agricultural crop or product already dominates an area, and if forestry can never become more than a subsidiary activity. Integration of two activities is most practical when the other product is also a tree crop such as rubber or fruit. The extension staff can then be trained to give advice on broader issues as well, such as soil conservation and tree species available for growing on land not suitable for the major crop.

In areas where animal husbandry is of major importance the care of fodder grasses as well as the forestry aspects can be included in the duties of livestock extension staff. The reason for integrating forestry and livestock management is that questions of stall-feeding, grazing patterns, lopping of trees for fodder, and the protection of saplings from trampling by animals are all closely interlinked. However, it is not possible to give forestry extension tasks to livestock staff if they are trained only to give advice on the care of animals in a more restricted sense, like vetinary medicine, and not in the whole production cycle including the growing of fodder and soil protection.

9.3.5 A project organisation:

Characteristics: In this case, a special project is set up in a district in order to bring about a change in the conditions for the rural people. A project can either be focussed on forestry or given a broader scope. The aspects to be improved may, in addition to forestry, include soil and water, agricultural products and commercial development. When a project gets under way new resources in the form of technical expertise and money are channelled into a district. In addition, existing resources in the form of trained manpower, for example, from different extension services and from non-government organisations, may be directed towards achieving the project goal. In order to do this a strong project leader is needed who has the legal authority, command of resources and personal qualities necessary to get various people and agencies to act together.

Rationale: A project can be the answer to a need for rapid change, for example, when a catastrophe has occurred or appears to be imminent. In a state of stagnant economic development, a project can also make radical changes possible.

When to use: A project can be used when no proper institutional structure exists for foresty extension and when there is no time to develop such a structure. An absolute necessity for a project to be successful, however, is that there should be an adequate budget for it. In fact, the sudden availability of new money in a particular area, for example, through a donor agency, or as part of a crash programme or a new government development initiative, is usually sufficient reason for establishing the kind of temporary organisation which constitutes a project.

The problem with projects is that they may be effective in achieving short-term objectives, but that the effects tend to fade away when the support phase is finished. It is, therefore, essential that they contain an institution-building component and that attention is paid to the problem of how forestry extension should be continued on a regular basis once the project is completed.

9.3.6 Summary

Two considerations have to be kept in mind when the form of a district organisation is chosen. One is that there is always the option of not getting involved in forestry extension activities at all, in a given area. The reason for choosing this alternative may be, for example, that additional forestry extension is not needed, that the chances of success are minimal, or that available resources can be used more effectively in another district. As forestry extension specialists become available they should be allocated in the way most likely to lead to success. If extension resources are concentrated instead of being spread out thinly the likelihood of success is greater, though the spread of the success will be geographically limited. When successful operations in certain areas are obvious the chances of obtaining support for expanding the programme into other areas will increase. During the process, more forestry extension staff should have been trained and have gained experience in the work. On-the-job training for staff in successful areas is most useful and knowledge and skills can then be transferred to areas which did not share in the initial programme.

The second consideration is that when the staff of an existing service takes on the task of forestry extension in addition to their normal duties, some organisational readjustments have to be made. If the existing staff are known to work on the whole very effectively, an additional task probably means that they will have too much to do. The area and the number of workers supervised by each member may, therefore, have to be decreased. In addition they must also be given, either more resources (assistants, means of transport, etc.), better pay or material rewards, or any combination of these so that they are encouraged to work even harder. When staff are known to be ineffective, this in itself is a strong argument for not giving them the additional task of being forestry extension workers as well. If it is thought necessary to do this for any reason, the reasons for the apparent ineffectiveness, e.g. lack of skill, resources, or rewards, have to be discovered and dealt with before the new task can be given to them.

When new generalist staff are appointed jointly with another service it means that these persons are given a more difficult task than that of being specialists. Therefore, the area and the number of groups served by generalist staff must necessarily be smaller than that of specialist staff. Irrespective of whether forestry extension staff are specialists or generalists from a field of work other than forestry, they have to be given both basic and continuing training in extension forestry to be able to carry out the task successfully. The better their basic training and the higher the frequency of refresher courses, the less the need for close supervision and frequent contact with the district office.

9.4 Central level organisation

The central level is defined as the forestry extension service headquarters. The forestry headquarters should provide the support extension officers need to carry out their work successfully in rural communities. The staff and functions of the central level should be kept small. The following criteria should be applied to judge whether a particular function should be

included at the central level:

- the function is of strategic importance and must be controlled by headquarters staff;

- the function is necessary for the overall co-ordination of activities and cannot be delegated to regional or local officials;

- to perform the function a specific resource must be employed, that is, a resource which is to be used by all communities, such as a central seed laboratory or a silvicultural expert;

- economies of scale are necessary in order to reduce the average production cost; (For example, a central printing office may be able to produce large quantities of a brochure more cheaply than a number of printers contracted at the local level.)

- advantage can be taken of the greater bargaining power of the central level organisation to obtain better prices or better credit and purchase condition;.

- it may facilitate access to decision makers and other important groups in the capital.

A number of functions which might be assigned to the extension headquarters are listed below.

Policy making
Government relations
Public relations
External co-ordination
Legal services
Financing
Human resource management and training
Technical support
Communication support
Logistical support
Supervision
Information and decision making
Administrative services

A short description of each of these functions is given below. Suggestions are made as to which units, officers or other groups can carry out these functions. The suggestions are intended to illustrate in a general way how functions and responsibilities can be allocated to different offices in a very large organisation. The precise distribution of functions at the central level must be based on an analysis of the problems the extension service must tackle and the context within which it must work.

FUNCTION	ORGANISATIONAL MECHANISMS & ALLOCATION OF RESPONSIBILITY
Policy making: Preparation for, and reaching agreement and diffusing knowledge about, the broad guidelines and objectives of the Forestry Extension Service expressed in a policy document.	Government Commission with broad representation. Head of Extension Service Responsible for inputs and preparations and in translating policy into operational guidelines.
Government relations: Convincing decision makers, politicians and the general public about the necessity of forestry extension to secure moral and financial support.	Head of the service and other senior officers to contact important decision makers. Known supporters of extension of high standing are kept informed so they can speak up in crucial situations.
Public relations: Information given to journalists and campaigns carried out through the media and other communication channels. The aim is to influence decision makers, opinion leaders, special target groups, employees of the Forestry Extension Service and the general public.	PR specialist, in certain cases assisted by senior officers, media and PR consultants.
External co-ordination: Enlist support from various organisations and agencies which can be partners in extension activities: agriculture, school system, voluntary and co-operative associations.	Joint planning groups. Special liason officer (possibly recruited from the collaborating partner).
Legal services: Review pertinent laws, suggest and lobby for new legislation. Work out forms of contractual agreements and land leases. Represent the extension service on commisions and groups dealing with land-use legislation.	Legal expert, possibly shared with other agencies or as a part time consultant.
Financing: Prepare, submit and negotiate budgetary proposals. Contacts and negotiations with non-government finance sources. Maintain a rapid and reliable flow of money to the field.	Finance or Planning Office. Heads of service and other senior managers. Accounts Manager.
Human resources management and training: Influence the educational system to train the right kind of people for the extension service. Formulate recruitment policy, personnel policy and personnel procedures and routines. Recruitment, promotion, in-service and continuing education.	Internal group for personnel policy. Manager responsible for Human Resources Development. Manager responsible for Training and Education. In-service training facilities.
Technical support: Know all about relevant research. Influence research institutions to undertake applied research in relevant areas. Translate knowledge into manuals to be used in the field. Provide materials for communication support. Decide on species to be recommended and technical procedures to be followed. Undertake trips and evaluate results achieved. Answer questions and give advice to field staff.	Technical specialists in the relevant areas: Silviculture Agroforestry Social anthropology Use of sub-contractors, outside experts or consultants.

FUNCTION	ORGANISATIONAL MECHANISMS & ALLOCATION OF RESPONSIBILITY
Communication support: Transform input from technical specialists into material and methods that can be used by trainers and extension workers. Distribute extension materials and knowledge about extension methods to in-service training, to extension workers, to farmers' training centres, to professional and technical education centres and to the general education system.	Communications specialist. Graphic artist/photographer. Consultants.
Logistic support: Provide blueprints and instructions needed for construction of buildings and nurseries.	Technical design specialist.
Provision and maintenance of a reliable system of two-way communication between all levels in the organisation and between extension workers and rural communities. Radio and telecommunications, suitable means of transportation. Distribution of communications materials and current information to the field.	Telecommunications engineer. Transport and dispatch manager.
Purchase and delivery of material which cannot be obtained locally. Procurement and distribution of seeds that cannot be obtained locally.	Purchasing specialist. Seed store and seed laboratory.
Provide instructions for maintenance of buildings and materials. Purchase of spare parts. Assistance with highly technical repairs.	Repair shops.
Supervision: Issue field operation plans. Respond to questions from the field. Make field trips. Provide encouragement. Assess the performance of field managers.	If the number of field managers to be supervised is not too large, the head of the extension service or his deputy, could be responsible for field supervision. Field operations manager. Field operations co-ordinating office.
Information for decision-making: Gather and evaluate all information concerning relevant aspects of: operations results, achievement of targets, problems encountered, available resources, costs, on-going activities, the situation of the rural population, agricultural production, situation of forest land, problems of soil and water protection. The above information is needed for evaluating past performance and making adjustments for future activities.	Report system. Accounting system. Review sessions. Specialist for planning and statistics. Contacts with forest inventories, research and other relevant sources of information.
Administrative support auxiliary services: Additional services needed to support the primary functions. Functions required by law, regulation or special agreements.	Specialist responsible for maintenance of organisation, routines, administrative systems. Computer services. Janitorial services.

The organisational structure of the Central Level is depicted in Fig.9.2. Not all the functions assigned to the headquarters requires a specialist to implement them. Sometimes several functions can be handled by one person. Some functions can be shared with other government organisations, or contracted to consultants or private firms specialising in planning, accounting or radio communications. In addition, the possibility of decentralising some functions initially assigned to the Central Level, especially Technical Services and Logistical Support, should be investigated.

To achieve a suitable division of responsibilities, the person in charge of the extension service should write job descriptions for the main functions which should then be modified as the staff gain experience. In a small Central level organisation it is possible to hold regular staff meetings to co-ordinate planning and activities, as well as to maintain informal contacts.

9.5 Where to establish the Forestry Extension Headquarters

The Forestry Extension Headquarters has to have a rather independent status even if it co-operates closely with other agencies at the field level. The chief of the extension service should have the possibility of making himself heard at the policy level and he should have the means to formulate plans and arguments and should have resources to implement these plans. Normally the headquarters of the extension service would be aligned to the national forest service. However, some other options should be mentioned.

9.5.1 Location at the Department of Agriculture

The first option is to locate the Forestry Extension Headquarters in the Department of Agriculture (or as a sub-department under Agriculture). The main reason for this would be if the field staff, who are to carry out the forestry extension duties, belong to this Department (see sections 9.3.3 and 9.3.4 in "District Level Organisation" above). This option is especially appropriate if the main agricultural products are of such a nature that the training of agricultural extension workers includes the growing of trees and soil conservation. An additional reason for aligning forestry extension with agriculture is found if the agricultural extension organisation is already organised according to overall production principles rather than in highly fragmented product lines.

9.5.2 Attachment to education and research organisations

The second option is to place the forestry extension service headquarters in close relation to the governmental service for education and research. Such a choice should be considered if extension activities in the country are mainly channeled through systems for education, and agricultural or environmental research and development. Extension staff might in this case be attached to, and work out of, universities, training centres and research stations.

9.5.3 Attachment to a Rural Development Organisation

The third set of options consists of placing the forestry extension service headquarters at the department responsible for rural development or another department of the government which has a responsibility for the overall development of the countryside, for example the department for soil and water protection. Again the reason for such a move would be that the administration in question, which could be used for forestry extension, has already in place a field extension organisation in the areas where forestry extension is needed.

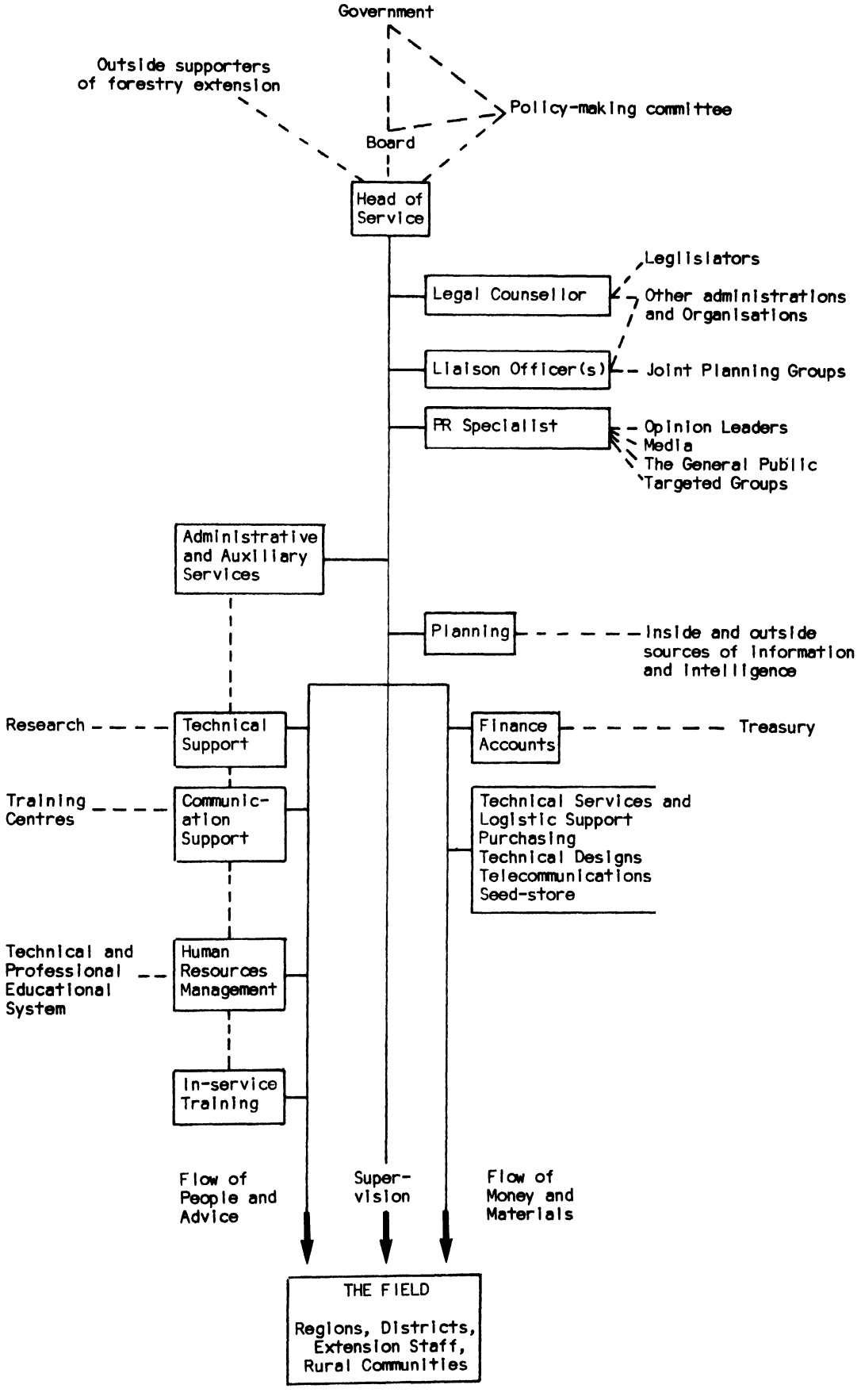


Figure 9.2: Structure of a Central Level of a Forestry Extension Service. The dotted lines indicate collaborative relationships.

9.5.4 Non-government organisation

The fourth option which may be considered is to attach the headquarters functions of forestry extension to a non-government organisation. A federation of forest owners organisations could serve as an example in areas sufficiently developed to have organisations of this nature. In areas where development has not yet reached that point, the headquarters of an international voluntary agency might provide a suitable location for the headquarters of a forestry extension organisation and the focus for administration and international contacts. To be considered suitable the NGO should administer a field organisation suitable for forestry extension. It should possess knowledge and skills required for mobilising the rural population for forestry activities and it should have independent resources in terms of people and finance to sustain the main functions for which it was established.

9.6 Structural options for forest authority control

It is now possible to consider the case when the public forestry authority is chosen as the location of the headquarters for the forestry extension effort. The main reason for such a choice may be that the forestry resources of a country need to be managed as a whole. In particular the following four functions may have to be treated in a co-ordinated way.

Monitoring and planning of the country's forestry resources.

Administration and enforcement of forest law.

Management of the public forest estate.

Extension, i.e. advice, education and support to the rural population and others who manage forestry activities.

The head of the forestry authority should have the responsibility of ensuring that the long term goals for forestry in the country receive proper attention.

In particular he should not see his main task as to maximise the income from sales from the public forest estate but to use legal and other means at his disposal to make sure that both those who administer the public forest estate and the rural population manage forest land in accordance with the needs for forest products and the needs for regeneration and growth. It will be easier to achieve these two major objectives if the responsibility for forestry extension rests with the public forest administration. However, to change from a strategy of protective forestry to one of extension forestry in a limited period requires considerable changes in the orientation and structure of the forestry administration.

In integrating the headquarters organisation of the extension service into the rest of the forestry authority three types of structure should be considered.

Forestry extension becomes an independent autonomous staff unit with direct control of its own field staff.

Forestry extension becomes an independent staff unit which has to work through other field staff.

Forestry extension becomes a unit subordinated to the chief of the territorial organisation.

The same structural options exist in principal when it is proposed to integrate the forestry extension headquarters with a service other than the forestry authority, but no further mention will be made here of this possibility.

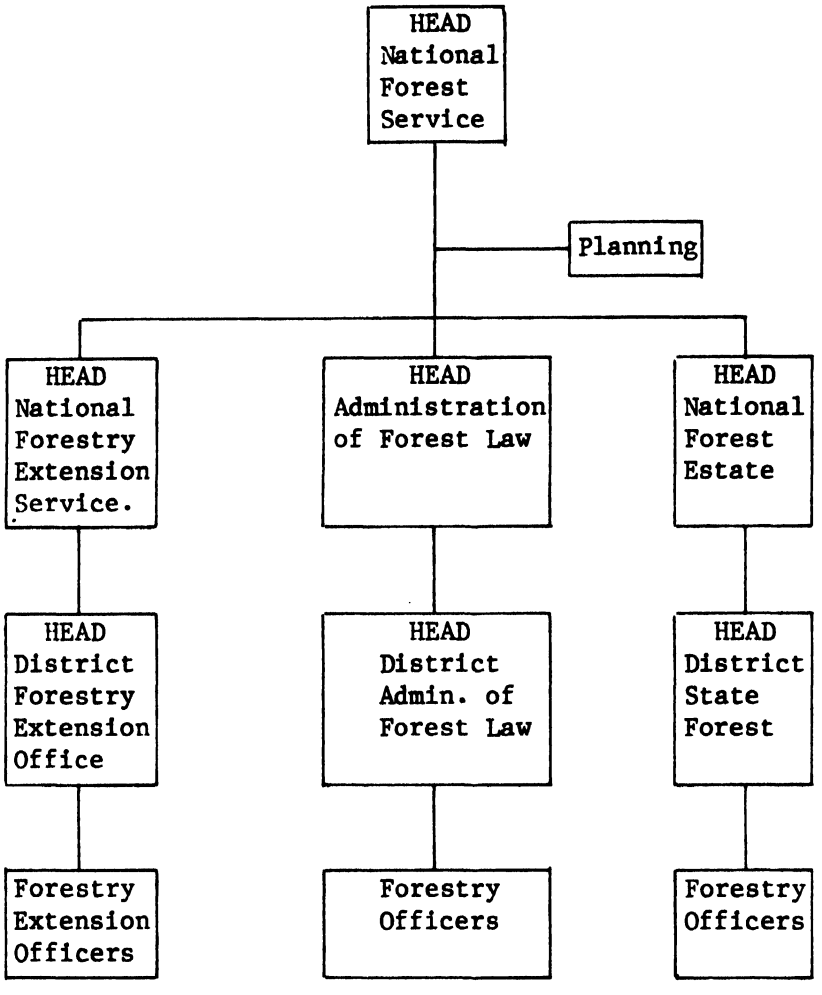
9.6.1 Autonomous headquarters division

The principles of this structural option are outlined in Fig. 9.3. The extension headquarters is in direct control of a field organisation dedicated to forestry extension. The national forest estate is in a similar way an automomous organisation dedicated to managing the state forest. The administration of forest law also has its own field organisation dedicated to the administration of legal matters. The separation of the management of the state forests and administration of legal matters indicates that forest law is seen in a much broader context than protecting and policing state forests. Legal matters viewed more widely could, for example, include the possibility that the legal division could play a larger role in approving forest management plans for the state forest managers, and monitoring the fulfilment of these plans.

The idea of separating extension from the other functions of the forest authority and assigning to it its own field staff, is to permit it to work exclusively for one objective without the problem of convincing the existing territorial staff of the need of change. Autonomous organisations of this kind can in time develop a high degree of technical knowledge and expertise. This structural option is likely to induce the staff of the extension service to produce ambitious development schemes and create fierce competition for resources with, for example, the administration of the national forest estate. For this reason the national forest authority needs a strong and determined leadership that is willing and able to set priorities for the entire system. At the same time, the ease with which top managers can monitor achievements of each main division facilitates the setting of priorities. One important advantage of the autonomous model is that the extension service can develop according to its objectives and the needs of its clients. It is also relatively easy to monitor and evaluate a specialist organisation and its sub-units. It is difficult to evade responsibility if bad management occurs because the head of the extension service has full control within his field of operations. These advantages have made the autonomous organisation model highly efficient where it has been implemented.

The main disadvantage of the autonomous model is that it requires large quantities of manpower and other resources both of which may be lacking in developing countries. It is an expensive solution in both these respects. A duplication of resources is bound to occur since both the extension service and the forest estate administration may have their own staff, research facilities, office space and communication equipment. This is a luxury few countries with limited resources can afford.

In addition the model does not lend itself easily to locally co-ordinated and integrated projects. Two autonomous organisations are likely to co-operate only to achieve some specific objectives in which they may have a common interest.



re 9.3 Structural option: Forestry extension as an autonomous division of the national forest authority

9.6.2 Subdivision of the territorial forestry organisation

This structural option is illustrated in Fig. 9.4. The head of the extension staff is placed below the head of the territorial forestry service. The idea behind choosing this kind of organisation instead of an autonomous one is a saving of resources. When extension activities are started up very few new people have to be brought into the existing organisation. When extension activities become more widespread, more and more staff can become specialists either as managers of state forests, extension workers or as administrators of forest law.

To choose this option is a sensible way of change, if the main part of the existing conservation-orientated territorial organisation has to be transformed into an extension organisation. However, there are some grave dangers inherent in this option. One is that the objectives of extension, protection and the forest estate management may be so antagonistic, that officers in the territorial organisation become bewildered, planning systems get mixed up and orders become contradictory. This development will mean a general loss of effectiveness and sense of direction. Another risk is that staff continue to see control of the forest estate as the most attractive part of their job and therefore ignore the extension aspects or perform them in an unsatisfactory way.

Because of the risk of the extension goals becoming displaced, it is important to choose a man who understands the difficulties of the process of change as head of the territorial organisation. If the right leader is found, there are many opportunities for the extension staff who are placed below him to give him advice and to influence and change the field organisation so it will be able to work for extension goals. As part of the change, a massive retraining programme is necessary for spreading more knowledge and understanding of extension forestry.

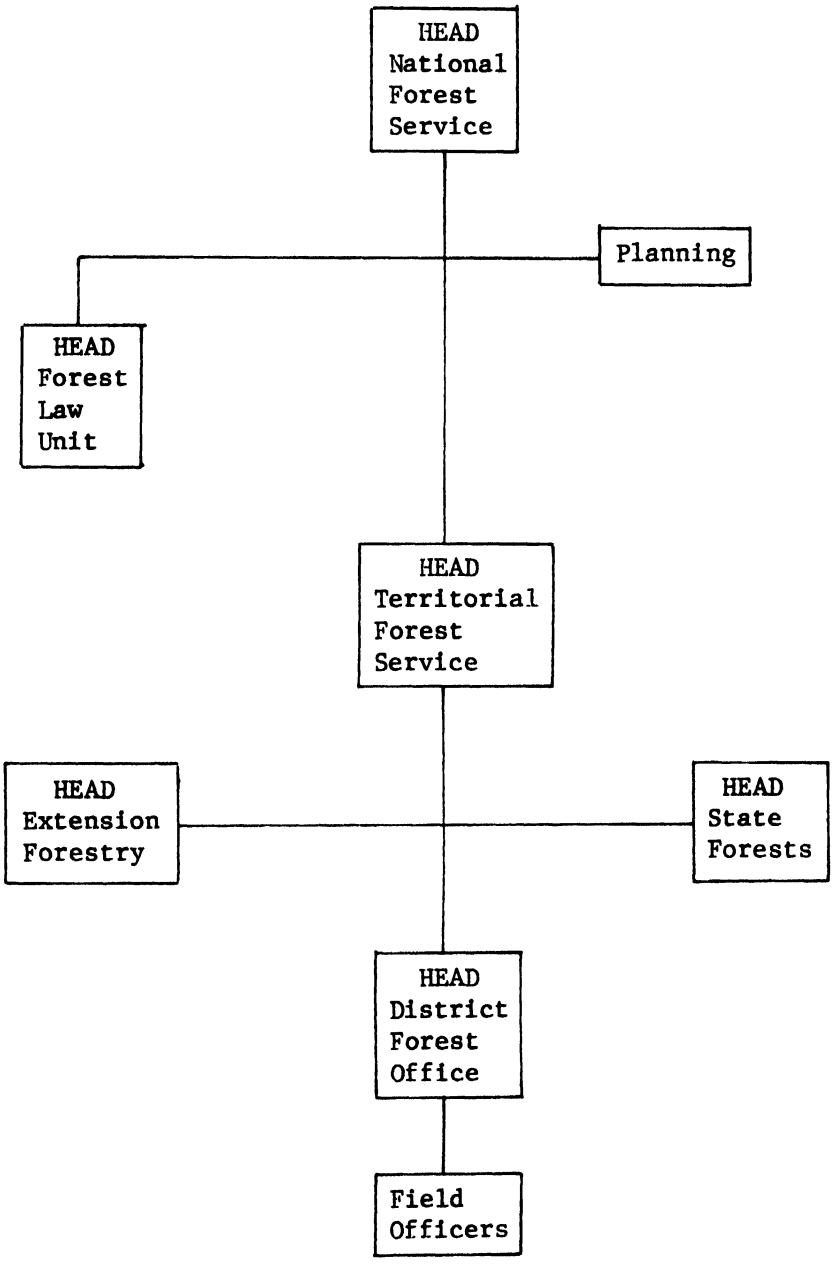


Figure 9.4 Structural option: Extension Headquarters as a staff unit within the Territorial Forest Service

9.6.3 Independent staff unit

The principles of this structural option are outlined in Fig. 9.5 The extension headquarters has the character of a staff unit, which has to work through the territorial staff of the general forest service or field staffs in other government services or NGOs, which can take on forestry extension tasks. The main advantage of this option in contrast to the option of placing extension below the head of the territorial staff, is that the extension headquarters organisation does not become a captive of another organisation. Instead it is free to choose to co-operate with one or more groups who have field organisations which can take on forestry extension. Therefore the option of extension as an independent staff unit is especially suitable when co-operation for field level operations have to be established with a number of organisations with different heads. The staff unit could function as a resource pool of specialists in questions related to forestry extension. These specialists could temporarily be engaged in projects in different areas and in co-operation with different organisations.

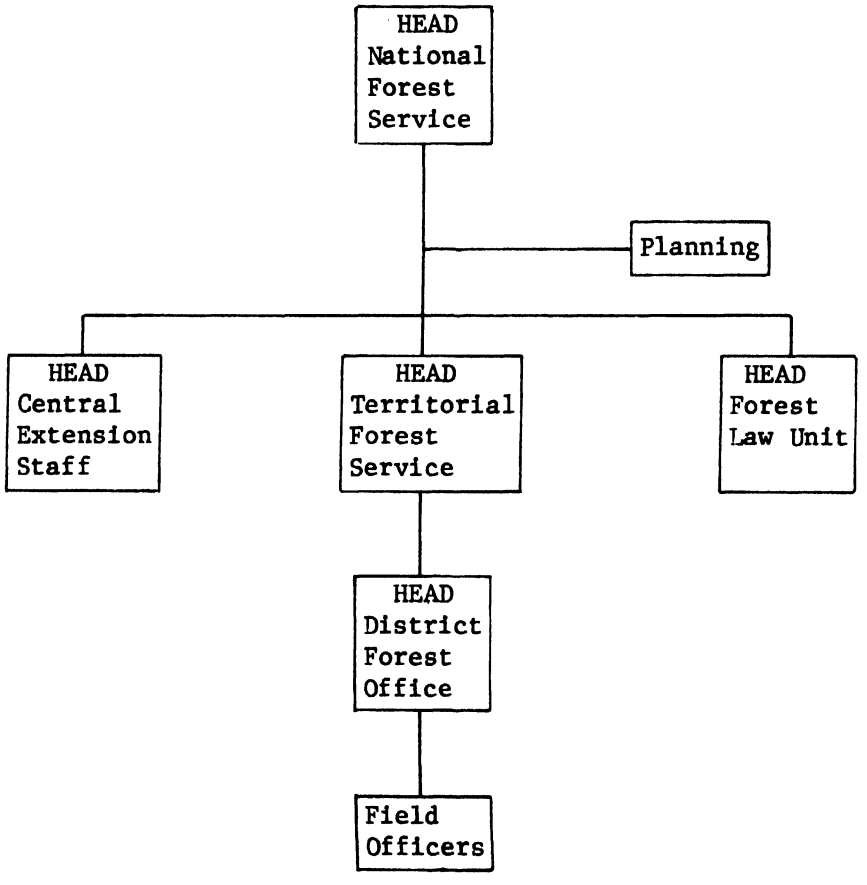


Figure 9.5 Structural option: Forestry extension headquarters as a staff unit under the Head of the National Forest Service

9.7 Which structural option to choose

Which structural option to choose depends very much on the situation in the country, and on attitudes, resources, reward systems and methods of working in the existing territorial forestry administration. The following recommendations may therefore have to be modified according to local requirements.

The forestry extension headquarters as a staff unit and resource pool, should be chosen if there are many organisations at the field level whose resources can be utilised for forestry extension. Under such circumstances, the forestry extension headquarters should mainly act as a support and catalyst to extension activities.

If the possibilities for widespread mobilisation of organisations and their resources for forestry extension do not exist, an attempt should be made to set up the extension service headquarters under the head of the territorial forest organisation. The reason for this is to utilise scarce resources and to initiate a gradual transformation to an extension orientated forestry service.

The autonomous option should be the long term objective when the point of departure is a subdivision of the territorial forest organisation. In the long run there should be separate lines of authority from central to local levels in the "extension division", the "forest estate management division" and the "division for administration of forest law". Each of these divisions can be organised according to its own needs. They do not need to have the same number of levels or the same pattern of district level offices. They can even have different legal forms. Sweden can be quoted as an example where the government forest estate is managed by a state owned corporation.

If no suitable organisations exist on which to build the co-operative option and if the orientation of foresters in the existing territorial forest administration is such that they are unable to accommodate change towards extension, an autonomous forestry extension organisation has to be established right from the beginning.

9.8 Regional level organisation

Up to this point only the local level and the central levels of an extension organisation have been dealt with. Sometimes a regional level organisation will have to be developed between the two levels.

A forestry extension service regional level organisation may be established for one of the following purposes:

- as a regional headquarters organisation which in principle, duplicates most of the central level functions at the regional level;
- as a liaison between the forest extension service and the regional authorities and organisations;
- as an intermediate link in the chain of command between the head office of the extension service and the field extension officers.

The least expensive way to build a nation-wide forestry extension service is to develop the central level and some local level organisations before sizeable resources are invested in creating regional level organisations. This will give headquarters officials time to develop their professional capacity and learn through direct interaction with extension officers at the local level and with community groups. This interaction will strengthen the extension organisation's ability to adapt according to its

initial experiences in implementing forestry projects. Decentralisation is likely to be required since officials at the central level cannot closely supervise the work of each local extension officer and each project.

However some representation may be needed at the regional level during the initial stages of extension activity. This representation can probably be handled by the territorial forestry organisation or other field organisations with which forestry co-operates. In other cases, an officer representing the forestry extension headquarters can be posted at the regional level as a liaison person.

When the capacity of the central level organisation has developed sufficiently, and when the scope of local extension work expands, a more developed regional level organisation for forestry extension may be needed. If a country's regional government administration is well established and has a good deal of autonomy in development activities, then a large scale regional extension organisation should be contemplated even at the initial stages and possibly at the expense of a highly developed central level. This is especially important if development and funding are largely determined on a regional basis.

9.9 Centralisation or decentralisation

The organisation level at which particular kinds of problems are routinely resolved and actions taken, defines the degree of centralisation or, conversely, decentralisation required in an extension organisation. The following rules can guide planners as they allocate decision-making responsibility to the various levels in the extension organisation.

> Decisions concerning some problems should be made at the lowest level where all relevant information is available inexpensively and easily.
>
> If rapid execution is essential, decisions should be made by the people who are responsible for implementation (or at a level as close as possible to these people).
>
> If local conditions which determine the success or failure of extension activities vary considerably, decisions must be made at the local level.

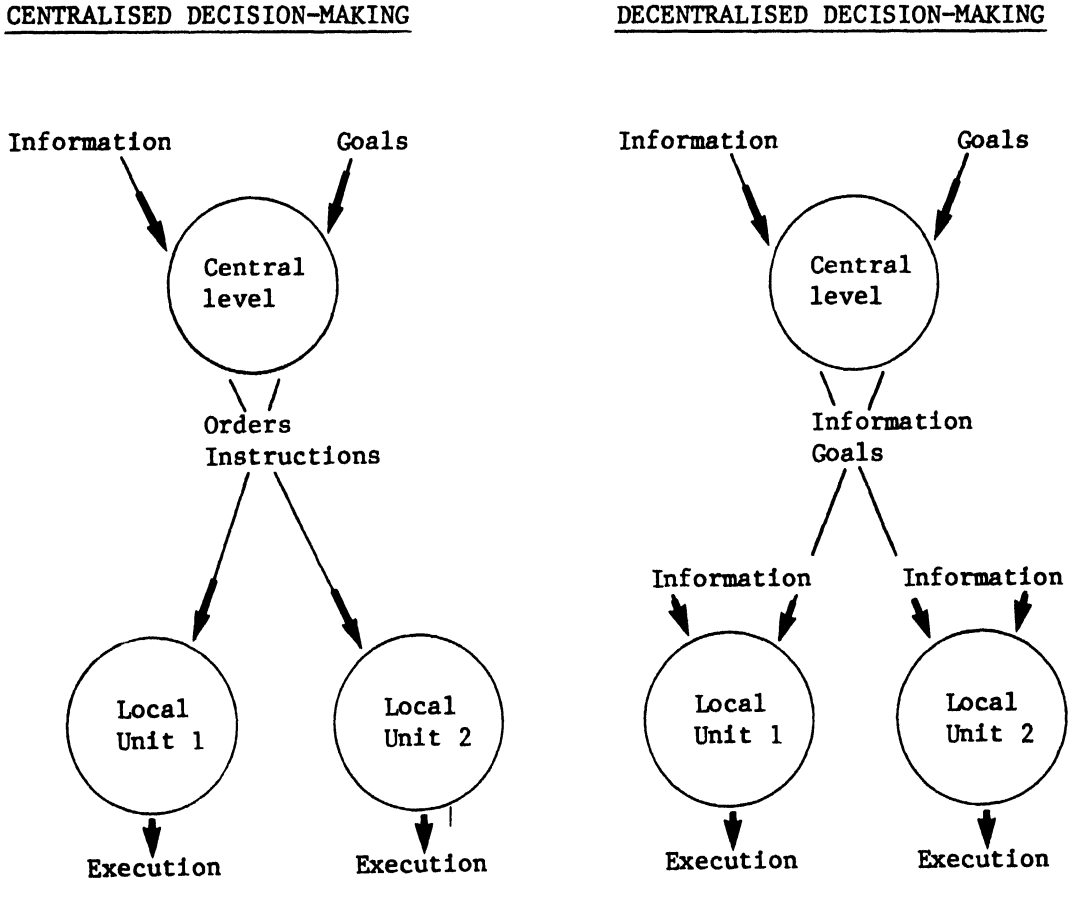
A decision is made by assembling all information which is relevant to the problem in question, e.g. the choice of species for afforestation. Different alternatives are then evaluated according to the extension objectives. The objective may be to produce fuelwood quickly. In this case, the energy content and speed of growth are relevant criteria for evaluating the alternatives. Once the "best" alternative has been chosen, the decision must be executed. Following implementation, the consequences of the decision should be evaluated to improve future decision-making.

Fig. 9.6 shows forms of centralised and decentralised decision-making. Decision making is centralised if central level officials gather the necessary information, formulate the alternatives and make a choice amongst these alternatives. This decision is then communicated to officials at the regional and local levels in the form of orders and instructions.

On the other hand, decision making is decentralised when the central level officials do not issue detailed orders to local or regional officials, but instead, communicate desired objectives and general background information to be used by the local and regional officials to make their own

decisions. Local level officials also use local information to solve community problems and implement these solutions.

When the head of the forestry extension service sets aside a particular sum in the coming year's budget for afforestation activities, centralised decision making is taking place. On the other hand, when a nursery foreman determines what kind of seedlings to plant in the community nursery, after consulting with the community forestry committee and the local extension worker, he is making a decentralised decision. If the head of the organisation had determined the seed type beforehand, the decision would have been centralised, or in this case, over-centralised. The design problem is to find the correct balance between centralisation and decentralisation for a series of possible problems.



ɟure 9.6 Comparison between centralised and decentralised decision-making

9.9.1 Effects of centralisation

Government bureaucracies have a tendency to centralise most decision-making. This results in heavy administrative costs, slow problem solving and costly errors. Errors are made because the central level cannot gather all the information it needs from the extension staff and community organisations. Even if it were possible to obtain this information, the bureaucracy would not normally be capable of weighing it all before making its decisions, which would therefore tend to overlook local needs and conditions. For example, species selected for afforestation may be unsuited to local soil and climatic conditions, or may not meet local needs.

Over centralisation affects the quality of human relations within an extension organisation. Central level officials become disillusioned about the ability of district officials, local extension staff and community groups to follow plans and carry out assignments. Lower level staff also appear to lack initiative. Superiors tend to attribute these perceived short-comings to the supposed limited capacity of the district and local officials rather than to a faulty organisational structure. Consequently, top officials become increasingly hesitant to delegate responsibility, and decision-making becomes increasingly centralised. Local officials and community members interpret over-centralisation to a lack of trust. Failure to achieve objectives is attributed to flawed instructions and inadequate support. Local and district officials begin to mistrust the capacity and competence of their superiors. Moreover, if it appears that incompetence at headquarters makes failure unavoidable, local officials see little point in exerting themselves in their forestry activities.

The government bureaucrat's desire to treat every case in exactly the same manner is one reason for the high degree of centralisation. The result of this bureaucratic style is that local and district officials who deal directly with clients are forced to act according to regulations and instructions from above. If clients request individual treatment or if something out of the ordinary occurs, the matter must be referred upwards in the hierarchy.

Centralisation also takes root when lower level officials are not trusted. Allowing these officials to decide how to spend money, for instance, may seem much too risky to headquarters personnel, and decisions concerning resource allocation therefore take place at the central level.

A third reason why centralisation occurs is more psychological than structural. The common social convention that a person of high social standing expects his will to be done favours centralisation of decision-making in an extension organisation. Superiors have power and subordinates are expected to attend to their wishes. This social convention is nearly always linked to patronage. A subordinate who obeys his superiors can expect rewards from people in positions of authority. An official who chooses to oppose a superior in order to resolve a local problem is likely to hurt his chances of promotion. The end result of this process is that maintaining good relations with the boss becomes more important than finding rational ways to achieve the stated objectives of the extension organisation.

9.9.2 Values of decentralisation

Some problems can only be resolved by local officials. Here are a few examples of problems which usually must be handled at the community level:

- choice of land to be planted;
- determination of the objectives of local forestry activities (fuel, timber, fodder, soil conservation, water protection, commercial production etc.);
- organisation of work, who should do what (communal, individual, payment for work etc.);
- species selection.

Here are some problems which should be handled at the district level:

- choice of client communities;
- selection of candidates for training;
- approval of management plans;
- allocation of scarce resources amongst several communities;
- order and timing of forestry activities.

Certain other decisions must however be centralised at the extension headquarters level. Examples of these are:

- allocation of resources to different districts;
- shifting resources between districts;
- determination of one and three-year goals for different districts;
- personnel assignment.

In order to see how decision-making responsibility should be allocated, a matrix of influence distribution can be drawn (see Fig. 9.7). The first column lists all extension service decisions. The columns to the right list different levels in the extension organisation. The numerical entries in these columns indicate the degree of influence different levels should wield in making the decisions. This figure is intended only as an example of a method of analysis. The method can be used by organisation designers to describe the present situation as well as plan for future allocations of responsibilities.

9.9.3 Decentralised decision making

An ideal distribution of influence will not develop automatically, and problems will be encountered in the attempt to decentralise. The following methods can be used to encourage and support decentralised decision-making.

Formulate instructions on decision-making procedures, including who should be informed, consulted and who is ultimately responsible for particular decisions.

Use planning and budgeting systems to force officials at different levels in the organisation to commit themselves to clear objectives within their decision-making areas.

Grant officials at different levels automatic access to resources which have been budgeted for them to avoid the necessity for repeated disbursement approval.

Allow officials to transfer money from one budget line to another, within limits, in appropriate circumstances.

Train local and district officials so that they are competent to make the decisions required of them.

Train senior managers to concentrate on policy questions and strategic issues, and to practise a participatory style of management.

Ensure that local and district officials have access to the information they need to make the decisions required of them, e.g. research results concerning different tree species.

Provide local and district officials easy access to specialists for consultation.

Build in reward and report systems which put emphasis on achieving goals rather than just on accounting for funds spent at the local and district levels.

Hold meetings where decisions are made with the participation of local and district officials, whose opinions are encouraged by top managers and incorporated into the decisions taken where appropriate.

In general, the larger the number of hierarchical levels existing between the head of the extension service and the local officials, the harder it is to achieve decentralised decision making. These levels should therefore be kept to a minimum. Well conceived policy, reasonable goals, clear descriptions of work procedures, training and well designed reporting and communication systems all lessen the need for close supervision of district and local activities by headquarters officials. They also increase the capacity of local and district officials to regulate their own activities.

Level / Decision	Government	Central Head-quarters	Regional	District	Extension Officer	Village
Allocation of resources to different districts		6	3	3	1	
Transfer of resources between districts		5	5	3		
Setting three-year targets for districts	3	6	3	3		
Appointment of an extension officer	3	6	3	3	3	
Choice of communities to work with		2	6	4	3	3
Selection of participants for training			2	6	3	3
Choice of land to be planted				3	3	6
Organisation of work in the community				3	3	6
Selection of species				5	5	5

Figure 9.7 Matrix of Desired Influence Distribution for Extension Organisation Decisions

1 - Informed after a decision is made.
2 - Informed before a decision is made.
3 - Consulted before a decision is made.
4 - Normally makes the decision subject to approval or vito from higher level.
5 - Joint decision-making with two or more levels agreeing on action.
6 - Normally makes the final decision.

10. PUTTING THE PARTNERS TO WORK

10.1 The partners

Chapter 9 dealt with the functions to be carried out by a forestry extension organisation and how these functions should be divided up and allocated, for example, to the central level or the local level. However, an organisational structure does not work by itself but by the means of putting other resources to work.

Resources should not be pictured simply as material supplies to be distributed within the organisation, and then put to various uses. Resources are really flows of inputs, from many different sources, which sustain extension work. The legal system provides a legal framework and services. Educational and research institutions provide manpower and knowledge. Financial support comes from government funding and financial institutions. Agricultural departments and other public offices and ministries can provide technical expertise and communication channels to rural communities. There are several different non-governmental organisations which can support extension work. Finally, the people and businesses which purchase forest products are the source of a very important resource: they provide the financial incentives which play a crucial role in motivating individual people and communities to plant trees and care for their forests.

All of these institutions and individuals are the logical partners of the forestry extension organisation. Therefore, they must be integrated into a network designed to support and strengthen the work of the extension organisation. In fact, if extension organisation managers devote their attention to skilfully organising the resources provided by their development partners, a heavy administrative superstructure can be avoided, thus freeing scarce resources for field extension activities. For this reason, extension managers, unlike the traditional forester or public forest administrator, must develop a capacity to handle working relationships with other organisations involved in forestry activities. This is a change not easily accomplished, and can only take place as a result of a deliberate effort to alter traditional behaviour.

To summarise, the availability and quality of external resources greatly affect either the success or failure of an extension organisation's work, and the effort demanded of the organisation in order to achieve its objectives. This chapter will discuss the possible partners in development for a forest extension organisation, and the resources they can contribute. Ways to increase the development partner's capacity to provide resources will also be considered.

10.2 Legal framework and land-use decisions

In many societies property rights are not fully regulated by laws and forests are considered to belong either to no one, or to be government property. This legal ambiguity is, of course, a great obstacle to getting community members interested in planting trees. It may even promote deforestation, particularly in the case of settlers in marginal or frontier areas who clear the trees from their lands in order to strengthen their claims to the property. In addition, tenant farmers in parts of Asia and South America, where landlords own a great deal of land, have no clear title to their fields or pastureland, and have, therefore, little motivation to take part in long-term forestry projects. In this case, land reform may be a necessary preliminary step for success in a forestry extension programme.

A forestry extension organisation must tackle the problem of land-use regulations in order to carry out its extension activities. For this reason, the organisation should ensure that its point of view be represented in all policy-making groups which deal with land-use questions. Taking this one step further, successful extension programmes require clear land-use planning based on accurate data about land-use patterns and social customs, backed up by appropriate legislation when necessary. This planning must not be confined to the national and regional level, but should reach down to the local level. Extension managers and workers must establish a co-operative relationship with local officials and community leaders in order to formulate local land-use plans. If an organisational structure capable of achieving this type of co-operative planning does not already exist, a local land-use committee or a forestry committee should be formed.

A "land manager" is a person or a legally constituted body responsible for the use and care of a certain area of land. The first requirement for good land management is an absence of confusion as to who the manager is. Government infringement on traditional land rights along with increased population pressure and commercial exploitation have created confusion even in areas where social customs in the past clearly defined land use. Land cannot be properly cared for if management responsibilities are not clearly defined. The possibility of a gain in cash or some useful goods is the second requirement for good land management. Community members are unlikely to tend a tree plantation if they suspect that only the government will profit from the timber harvested from it.

Establishing local ownership is the clearest way to designate who should manage the land. This is happening in Nepal, where rural communities can now request a title to unstocked state forest land required for community forestry activities. In other countries, state governments have felt it necessary to retain ownership of forest land, and in some cases have even enlarged their holdings, in order to manage the forests through contracts with communities and individuals. Such contracts can take the form of leases or rights to harvest produce for a fixed period of time. In the event of any dispute, these contracts can be enforced through the courts of the country. Although written agreements which define land-use responsibilities and benefits are a step in the right direction, contracts in themselves cannot normally overcome the natural distrust that many communities feel towards their government and its local representatives. It takes a long time to make a system of land management, based on contracts, effective. Trust must be created by demonstrating that government agencies can honour such contractual agreements.

Where government delegates its management responsibilities through contracts, or permanently relinquishes it by transferring land ownership, the identity of the new land-use manager is extremely important. A list of potential land managers and partners to contracts for forestry extension programmes might include:

- individuals;
- rural communities or traditional social groups;
- educational or religious institutions;
- rural associations or voluntary organisations;
- co-operatives
- specially created associations, e.g. groups of landless people, youths or women.

There is no ideal partner for all situations. For example, collective management schemes would not attract wide support amongst individual community members in countries where individualism is an important social

value. On the other hand, village forestry associations have been very successful in establishing tree plantations in the Republic of Korea where there is a tradition of collective labour at the village level. This has also been the case in the People's Republic of China, a country which has achieved impressive results by planting shelterbelts with the mass participation of members of agricultural communes.

The rural community is often mentioned as the most logical land manager for tree planting schemes. However, before attempting to generate a commitment within the community to plant trees, an extension worker must determine whether a traditional, or official, decision-making procedure exists within the community, and whether its rulings are respected and binding on members. In the same way the eventual distribution of the benefits arising from community forestry activities must be considered. An extension worker should consider whether the probable system of distribution of the benefits discourages or stimulates community members to take an active part in forestry extension projects.

If there is no group or organisation at the community level with the ability to motivate villagers and commit community land for forestry projects, organisations which can fulfil this management role should be created. Co-operatives are an effective way to attract community involvement, but as has been pointed out, the willingness of villagers to work collectively on communal land varies with their cultural values. Moreover, where co-operatives do not exist, there may be legal complications in their formation. If this is the case, a forest extension organisation could help to set up a simpler form of economic organisation for the community.

Forest law in tropical and subtropical areas is often based on concepts developed in temperate zones, and therefore may need to be modified to support forestry extension activities. These laws may also have been written to give foresters maximum control over forest resources. In this case the law may have to be changed so that management responsibility can be transferred to community groups. Legislation which encourages positive behaviour rather than just dealing with violations of the law may be needed. In Sweden for example, legislation has generally supported forestry extension activities. On the other hand, laws can be counter-productive in the effort to bring about good forest management. This has been the case in some South American countries where the sheer volume of forestry laws and regulations is so great that forest managers, public forest administrations and judicial systems cannot even disentangle, let alone enforce, the legislation.

Because the creation of an appropriate legal framework and good land-use planning is so important for the participation of the rural population in forestry activities, a legal expert is needed to work at least temporarily with the extension organisation. This person must be active both within and outside the extension organisation in order to put together the legal framework and design the contractual agreements which are essential to good forest management.

10.3 Research

Extension work channels knowledge and skill to the rural community in order to expand its capacity to utilise forestry to improve its way of life. When extension activities are first started, the existing knowledge in the community must be put to the best possible use. To make extension increasingly effective, however, this existing knowledge must be evaluated and improved. The forestry research which has developed the techniques currently taught to extension workers is also continually re-evaluating these techniques and developing new ways of doing things. For this reason,

forestry research and the knowledge it produces are crucial extension resources. An effective partnership between the extension organisation and research institutes is essential.

10.3.1 Traditional forestry research

Forestry research has a long tradition. The complexity of forestry and its long production cycle, which can last three or more times the professional life of an individual forester, requires research to be conducted by institutions to expand existing knowledge and discover new techniques which cannot be developed in day-to-day field work. For example, provenance research and production tables are needed for successful forest management.

Advanced forestry research is well-established in many timber producing countries, and there is a high degree of international co-operation in the field. However, research has been influenced by the type and location of the forests which up until now have been actively managed and commercially exploited, as well as by the search for marketable, wood-based products. For these reasons, it has concentrated on large-scale forest management in temperate zones and on the industrial processing of wood. The emphasis has been placed on capital intensive solutions to forestry management problems, requiring little labour input.

10.3.2 Forestry extension research

Because its goals and methods are very different from large-scale commercial forestry, forestry extension programmes require new kinds of research. Governments and other institutions which fund forestry research must change their priorities in order to bring about this reorientation. Research institutes and universities must begin new types of forestry projects, and research students should be encouraged to concentrate on problems related to forestry extension projects.

As has been discussed in earlier chapters, deforestation is a grave problem in many parts of the world. Rapid replanting must take place in these areas if irreversible ecological damage such as desertification is to be prevented and in order to reverse the downward trend in the already very low rural living standards. Initial afforestation attempts have encountered difficulties due to the absence of appropriate forestry knowledge and techniques. A massive, well financed research effort is needed to develop this new afforestation technology.

Forestry extension programmes require research efforts in the areas listed below. Examples of relevant research problems are also mentioned.

Kind of products to be produced, including,

- the burning properties and calorific values of indigenous trees and shrubs, especially in the arid and semi-arid zones;
- the nutritional value of the leaves and twigs;
- the use of trees and shrubs for biogas;
- raw materials for craft and cottage industries;
- cheap and simple processes of timber preservation.

New benefits expected from trees, including,

- shade;
- windbreaks and other types of evaporation reduction;
- reduction of surface run-off;
- fixation of nitrogen in the soil;
- control of plant pests and animal diseases.

New production systems for wood in local communities, including,

- multiple-product forestry;
- small-scale forestry;
- agroforestry;
- silvipasture.

New organisational forms to promote participation, including,

- generating commitment;
- organisation of planting;
- protection;
- marketing;
- distribution of benefits.

Appropriate operational procedures, including,

- improved techniques for manual work;
- new tool and light machinery designs for forest operations;
- simple equipment for the conversion of timber and processing of minor forest products.

Legal measures to facilitate new land-use systems, including,

- advantages and disadvantages of various forms of land tenure;
- procedures for land-use planning and implementation of plans;
- application of incentives for better use of land;
- forms of government supervision of forest managers;
- tax systems.

Most of these are problems of applied research, where it is important to ask questions which are relevant to practical situations. The research must be undertaken jointly by foresters and investigators, to avoid asking

the wrong questions, and to prevent misinterpretation of research results by field personnel. Both regular meetings and informal contacts are essential to foster and maintain a good relationship between researchers and foresters. This collaboration can be further strengthened by rotating forestry personnel between research and field assignments within the public forestry administration.

It is clear from the above list that extension orientated forestry research must be inter-disciplinary, including the social and behavioural as well as the agricultural sciences. However, experience has shown that multi-disciplinary research efforts are difficult to achieve. It appears that the best way to implement this kind of investigation is to assign qualified researchers in the different disciplines to work in a loosely co-ordinated network or in "ad hoc" research projects.

10.3.3 In-country efforts

A national forest administration which is developing an extension organisation should at the same time ensure that forest research facilities exist within the country or are created. When forestry research is undertaken within the country where its results are to be applied, solutions tend to be geared to local problems and respond to local demands and conditions. It is also easier to convince public officials and community groups that research results are trustworthy if the investigations are carried out in their own national territory. Finally, a co-operative working relationship with research institutions helps to foster the mental flexibility and willingness to embrace better ways of doing things which is so important for effective extension activities.

Establishing forest research facilities need not require investments in sophisticated equipment and a bureaucratic organisation. Many of the research needs listed above can be met with simple equipment employing a straight-forward, uncomplicated methodology. Important results can be obtained using rudimentary equipment within a simple institutional structure if the researcher approaches concrete problems logically and follows a well-designed research plan.

10.3.4 International co-operation

There are several international organisations that promote and co-ordinate research, and disseminate results which are of interest to extension managers and workers. These include the International Council for Research in Agroforestry (ICRAF), the International Development Research Centre (IDRC), and the International Union of Forest Research Organisations (IUFRO).

Countries in the same region can co-operate by exchanging research results, joining forces so that each can concentrate its resources on different problems, and carrying out joint investigations and establishing joint research facilities. Much can be learned from countries with highly developed research programmes. An effective way to transfer knowledge to countries which are setting up research facilities is to have a scientist from an advanced institute work with investigators on routine research problems. This can provide invaluable experience for national research staff, especially in developing methodology.

10.3.5 Documentation

A large quantity of technical knowledge in document form often exists in developing countries, although it is sometimes scattered in different

locations and filed away in government offices. The problem of locating this prevents valuable research findings from being applied while inappropriate or outmoded methods continue to be used. New research projects may even be started to solve problems for which answers have already been found.

For these reasons, a forestry documentation and information centre is a good investment. Its main task should be to organise and catalogue existing research material, and to develop a system of filing new information and research results for easy retrieval.

Extension workers commonly complain that research findings are limited and too specialised to be applied in the field. A special effort is necessary to overcome this problem. When a project is being planned, an afforestation campaign for example, a "literature search" should be undertaken to gather existing research findings on the species or techniques under consideration, as well as the local farming patterns and rural organisations. This search can provide information with which to judge the suitability of the planned approach, serve as the basis for a more detailed plan of action, and also provide materials which can be used to develop extension and communication aids. Gaps in existing knowledge and areas in which the project could provide data for research can be identified through the literature search.

These reviews, specific to a particular project, are not usually part of a research institute's activities and are not therefore included in its budget. However, researchers willing to carry out these searches can generally be found if the forestry extension organisation is willing to meet any costs involved. The research worker, the extension worker and the documents centre librarian involved should all collaborate in the literature reviews.

10.4 Education

Extension is in itself a form of education. Educational institutions, especially the nation's school system, are therefore an important partner in extension work.

The ability of the rural population to receive educational messages is improved through instruction in reading and writing, and by the transfer of fundamental knowledge. Schools in rural communities can also make people aware of ecological processes and social dynamics essential to understanding how forests and trees function, and the role they play in rural life. The educational system can also impart specific knowledge about forestry and forestry extension goals and methods.

By maintaining contact with the education ministry in the country, the policy makers and planners of extension organisations can incorporate forestry themes and educational materials into primary and secondary schools' curricula. School systems can also be mobilised to support forestry campaigns for development. Co-operation between extension workers and teachers should not be confined to the national level. At the regional and local levels contacts with teachers, schools supervisors and extension workers can integrate forestry activities and the educational system.

10.4.1 Farmer training centres

Vocational training centres for farmers are also potential partners in forestry extension. These centres can help set up courses for farmers who are taking part in forestry extension projects. Forestry courses for community leaders, prominent farmers, plantation supervisors and nursery

foremen may require very many training days per year. This means that eventually the vocational training centre staff and installations may have to be expanded. Moreover, foresters must persuade the staff to include forestry themes such as fuelwood needs and soil conservation in their regular training courses, when land-use management is discussed.

10.4.2 Professional training institutes

Institutions which train professionals and technicians who come into direct contact with rural communities in the course of their activities, are other suitable partners in forestry extension. These professionals and technicians can have both a direct and an indirect influence on forestry activities and land use management. In addition to universities and institutions which train agricultural technicians and extension workers, teachers colleges, religious training centres, and colleges which educate students for the civil service are all potential channels for sending information on forestry into rural communities.

Forestry extension managers should analyse the strategic importance of these institutions (and the people they train) in specific rural areas, and try to include forestry themes in their curricula accordingly. Agricultural education in particular, at both the university and technical level, must be broadened in order to produce agronomists who recognise the role of trees and forests in rural development. Finally, although the forestry extension approach is gradually penetrating forestry education, it does not appear to have been properly initiated in agricultural and extension training institutes.

10.4.3 Forestry training

The expansion of an existing forestry extension organisation and the creation of new organisations require quantitative and qualitative changes in the present forestry educational system. A number of surveys (see Schmithüsen, 1983) indicate that while by 1985 several South-East Asian and Latin American countries will have the institutional capacity to train their own professional foresters, many African countries have not made much progress in this area.

Some of the countries which still lack forestry education facilities are contemplating the establishment of forestry departments in their universities. The surveys also discovered that existing university forestry programmes need to be improved. Teaching staffs need to be strengthened and orientated towards national forestry development. Research also must be strengthened as well as integrated into forestry extension activities.

Forestry training courses must be changed to include ecological and environmental subjects, economics, management and the social sciences. More attention must be paid in basic forestry courses to land-use economics, rural forestry, (in particular agroforestry production systems), ergonomics and appropriate tools, soil conservation and protection, as well as wild life and national parks management. Opportunities for specialisation in these areas should also be provided. Since extension will be the main activity of many foresters, training in educational methods and communication skills is needed. The expansion of forestry curricula in these new directions should be accompanied by a review to determine the obsolete or relatively unimportant components of present forestry courses which can be deleted.

Improvement in the quality of professional forestry education should be accompanied by a change in the attitudes and values which are promoted as part of the training. Since forestry extension depends on the ability of

foresters to respond to the particular demands and conditions in each community, emphasis must be put on improving the forester's capacity to react to the local situation instead of imposing textbook solutions. This attitude can be called orientation towards practical experience. Practical orientation also means that students should be trained to carry out a wide variety of manual tasks so that when necessary they can demonstrate these tasks to field workers and farmers.

The forestry education surveys mentioned above also indicate that there is a great need for the training of forestry technicians. The shortage of technicians was found to be a major obstacle in the development of the regional and field services of public forestry administrations. Well trained technicians are also needed as instructors in vocational training centres for forestry workers and farmers. According to the "World List of Forestry Schools", in 1981 there were 285 technical and vocational training centres for forestry in the developing world. More training centres are needed if forestry extension services are to be expanded. In particular, the expansion of forestry extension programmes will demand more forestry technicians to train community members to manage new industries which process forest products.

The forestry technician's curricula should be improved in the ways mentioned above for the forestry professional. In addition, there may be a need to train specialists in the field of agroforestry and extension, such as is done in the special certificate level training for "Community Forest Assistant" which has been organised at Pokhara, in Nepal.

10.4.4 Planning for educational change

Expanding and changing educational systems takes time because, amongst other reasons, both teachers and teacher trainers have to be educated before large-scale changes can take place. Senior managers of a forestry extension organisation should convince those who are responsible for forestry education that planning for changes is necessary. The extension service should involve itself in the planning and furnish the planners with data and other material concerning changed training needs.

The planning must take into account all the human resources required by the forestry sector. This means that periodically updated forecasts of manpower needs at various levels must be produced. However, since resources for training are scarce, planners should examine existing training institutions both inside and outside the forestry sector before new, specialised facilities are contemplated.

In order to facilitate the expansion of the forestry education system, the forestry administration must establish good working relationships with the officials who control the national education system. The possibility of regional and international co-operation to improve forestry education should also be explored. For example, in Los Banos in the Philippines an institute has been set up to train Asian technicians to teach community-orientated forestry.

Merely providing more training will not ensure the recruitment of able and dedicated people for the forestry sector. Would-be foresters must be convinced that job opportunities exist in the sector, and that the available posts are stimulating, prestigious and well paid. Therefore, educational planners must persuade the public forestry administration to continually adjust their organisational structure and job descriptions in response to the changing demands for their services. If this is done, there will be room for ambitious recruits.

To summarise a forestry extension organisation requires a form of resources management which extends well beyond the organisation itself.

10.5 Finance

Building an extension organisation to improve existing forests and plant trees where they are needed for fuel, water and soil protection, fodder, timber and other forest products, is an investment. Money to finance human resources and growing stock is invested to increase the capacity of the land to produce crops, water and other products.

An investment makes financial sense if its yield is equal to, or greater than, the return on the same amount of money invested in other ways. If the money to make an investment in forestry is borrowed, then the return should be greater than the interest paid for the loan and, ideally, greater than the return on alternative uses of the loan. For example, the yearly "return" of an afforestation project would be expressed in increased production and well-being of the rural community, which may well exceed the interest paid on the loan to finance the project. The government which borrows to invest in forestry extension is analogous to the farmer who takes out a loan to buy seed in the expectation that his future harvest will cover the cost of the loan and his other expenses. A government that spends money either borrowed or drawn from current revenues is making a good investment whose return is expressed in increased land values and national wealth.

As an example, it may be assumed that all the trees in Sweden's forests have disappeared. In this case the value of an investment which would bring annual wood production to its present level of 75 million cubic meters can be calculated. On 1983 figures, this would be nearly US$20 billion, or about US$800 per hectare of existing forest land.* That is the sum which the Swedish government could invest in building an extension service and planting trees without losing money on the operation. The yearly sales of trees on the stump would, in time, be enough to pay for the loans necessary to make the investment.

Other benefits which are difficult to calculate in monetary terms such as increased wildlife, water protection and other environmental effects raise the return on our hypothetical investment even higher. In addition, wood produced by the forests is used in many industries which multiply its value by 20. If this added value is considered, the return would be higher still. It should be noted here that the value of Sweden's forests is limited because they grow slowly. If the trees in Sweden grew as fast as in tropical areas, the return on the investment would increase even more.

The money value of forests are shown clearly in the national accounts in economies like the Swedish one where wood is traded on markets. In developing economies most of what the forests produce is used directly by the households and therefore does not appear as a positive value in government calculations on whether or not to invest in forestry extension and forestry development projects. The only positive value recognised may be timber sales the government itself can make. This is wrong because forest products have a value even if they are not traded on a market.

* The average stumpage price is assumed to be US$10/cu.m and the cost of capital is assumed to be the rate of inflation + 4 percent.

10.5.1 Financial partners

Since building an extension service and planting trees are, if properly carried out, profitable investments, foresters have strong arguments which they must know how to use to obtain the financial resources necessary for this work.

There are many possible financial partners. The national treasury is the most important. Political decision-makers can be asked to compare the value created by investing in forestry with the benefits resulting from other uses of budget resources. Since government officials tend to regard the forest as a "mine" which can be exploited to benefit the public treasury and to satisfy land, timber and fuelwood needs, it may not be easy to convince politicians to invest in forestry extension. In fact, lack of financial resources is the most common complaint of forest administrators in Latin America.

However, by turning their backs while forests are destroyed and serious environmental damage is caused, politicians are permitting the national wealth to be eroded and the rural population to become poorer.

A revolving fund controlled by the national forestry administration is a method used in some countries to ensure that at least some money is invested in forestry. When timber is sold from government forests a sum equal to the cost of replanting an appropriate area is set aside for the fund. The resources of the fund are used exclusively for reforestation.

Other possible financial partners include international institutions such as the World Bank and the Inter-American Development Bank which have special methods of evaluating investments in forestry which take into account social and environmental aspects. Several national donor agencies also have a particular interest in forestry projects. Forest investments can be made attractive to these international organisations and government donor agencies by emphasising their tremendous potential to increase national wealth. A well-written application for aid money from these organisations to finance the development of a well planned and organised extension service should have a good chance of being approved.

10.5.2 The value of forestry extension

The following list contains different kinds of benefits which are created through forestry extension activities, and which can be used to persuade potential financial partners that the return on investments in forestry are substantial:

Direct economic benefits:

- the value of increased fuelwood production;
- the value of increased timber production;
- the value of minor forest produce;
- the value of increased agricultural production (agro-forestry).

Indirect economic benefits:

- the value of increased agricultural production due to protection provided by trees and increased availability of water;

- the added value created by industries which use forest products as raw materials.

Human resource benefits:

- the value of the education provided by the various educational institutes involved in building the extension organisation;

- the value of increased agricultural production due to better educated farmers.

Other non-monetary benefits:

- prevention of starvation;

- increased availability of drinking water;

- improved health;

- prevention of social conflict;

- improved climate;

- beautification of the landscape.

10.5.3 Operation of an extension organisation

After the initial investment to establish an extension organisation, financial resources must be found to cover its operating costs. This current income must come from the government's budget and the extension organisation's own revenues collected for services it provides to rural communities, from forest industries and other users of forest products. Afforestation does more than increase land values and the earning capacity of farmers. The government may also collect more taxes on the new natural resources. Increased tax revenues may convince politicians that a sizeable part of the extension organisation's costs should be covered by the government. Eventually, when farmers begin to see the income generated by planting trees, they may become willing to pay for seedlings and other extension services.

10.5.4 Incentives to farmers

Until now, the problem of financing has been discussed from the point of view of the extension organisation. However the rural community normally also possesses financial resources which can be used in forestry extension. Farmers are normally asked to contribute both land and labour to afforestation projects. In addition, they may be required to pay for materials and services, particularly the more valuable species of plants, for example.

The poorer farmers and the landless, who are important forestry extension target groups, have by definition, no financial or material resources to invest. They normally seek daily paid employment in order to survive. Therefore to secure the participation of the poor in community forestry projects means that the extension organisation must offer payments

in cash or in kind. This payment for afforestation work has to be as great or greater than what the labourers can earn from their normal activities. In Peru and several other countries programmes which provide food in return for the planting of trees have had considerable success. This kind of incentive may not be necessary in areas where farmers are fairly prosperous or where a community is itself able to compensate members taking part in afforestation programmes. However, planting without resort to incentives has its advantages. For example, the commitment to the project tends to be genuine, and counter-productive effects (such as rations supplied for fire-fighting leading to more fires) can be avoided.

Incentives must be designed so that they help to achieve intended objectives. For example, a premium can be paid to people participating in afforestation according to the survival rate in successive years following planting. The right to a share in the produce or the revenue when the plantation is harvested can also serve as a strong incentive. By the same token, uncertainty about who has the right to the trees which have been planted may be a strong disincentive. Forestry extension activities should not be financed through loans to people if the main goal is to produce non-marketable goods such as fuelwood for local use or to improve soil and water conservation. Loans should only be used when the activities proposed are clearly designed to produce commercial forest crops. In this case, the extension worker may try to arrange the participation of commercial banks and other institutions which finance agricultural activities. In order to secure a loan, the people concerned may need to be organised in a legally constituted co-operative. If land titles are unclear, or if the trees are to be grown on land owned by the government or a landlord, it may not be possible to offer the growing forest as a security. In countries where trees growing on another person's land cannot be mortgaged in this way, extension organisation managers should promote legislation to make it possible.

10.6 Agriculture

Forestry in extension programmes is an integral part of other farming activities. In Chapter 9 the possibility of formally joining the forestry extension organisation to agricultural extension was considered. Even in cases where a formal merger does not take place, public agriculture administrations, agricultural extension services and other organisations supporting agriculture in rural communities are essential partners to the forestry extension service. Establishing close and fruitful relationships with other extension agencies depends on:

- the degree to which goals, orientations and general interests are shared between partner agencies;
- the quality and quantity of the other agency's resources;
- the level of organisation and degree of co-ordination between the extension services.

In rural communities where they are already established, agricultural extension workers are a useful communication channel for the forestry extension message. In addition to educating agricultural extension staff about forestry techniques and benefits, the forestry extension organisation should persuade them to pay more attention to forestry and land-use questions in their work. For example, the agricultural extension staff could be instructed to notify foresters when they come across a community interested in undertaking afforestation.

Special administrations and extension services for livestock can also contribute to forestry extension goals. The advice to farmers concerning fodder, grazing patterns, stall feeding and range management will have far-reaching effects on soil conservation and the possibilities for tree regeneration. Livestock specialists can also give farmers and foresters alike advice concerning suitable fodder species. They can also be given training in carrying out some forestry extension work.

Since farmers often prefer fruit trees, collaboration between forestry and horticultural extension officials can be useful. Likewise, in humid tropical areas the tree crops that interest farmers are often dealt with by special extension services (for example, in the case of rubber, cacao, coconut and oil palm) that can collaborate with the forestry extension organisation.

10.6.1 Conditions for successful partnership

Despite the potential for co-operation amongst different extension organisations to meet forestry extension objectives, the narrow orientation of many of these organisations limits their usefulness in integrated development activities. The extension organisations have mainly concentrated on the technical aspects of agriculture such as seeds, fertilisers, irrigation, insecticides and pesticides. The success of a partnership with another organisation therefore depends on the extent to which these organisations see rural development from an integrated rather than a purely technical perspective.

A second condition for useful collaboration is that the partner extension service must possess adequate resources. This does not only refer to the number of staff a service has in rural communities. Numbers alone do not ensure that collaboration will be fruitful. These extension staff are not particularly useful if they possess no means of transport to take them to the rural communities or the necessary skills to communicate with farmers on topics outside their immediate technical expertise. The extension staff also must be supported by research which can provide them with the teaching material and information required. Communication links and transportation are also necessary to maintain contact between field workers and management in the organisation. Unfortunately, in practice, many other extension organisations have insufficient resources even when manpower is adequate. Therefore, these services are probably fulfilling their original task with difficulty, and are hardly in a position to participate in forestry extension activities as well.

Co-operation is the third condition necessary to establish partnerships with other extension organisations. They are often highly fragmented. Farmers meet the cereal extension worker, the sugar cane extension worker, and the livestock extension worker but seldom a person who possesses an overall perspective and sees farming within the context of optimal land use. However, some countries have attempted to change this type of fragmented organisation for a more integrated extension structure. In some cases, a single extension service has been established for an entire rural development area. The basic integrated extension organisation is illustrated in Fig. 10.1. If integration attempts are already being made, forestry extension activities can be included.

The integrated approach has encountered problems in practice, and rural extension staff have had difficulties co-ordinating different extension activities, In any case, extension organisation for integrated rural development needs strong support from the forestry sector. In areas where afforestation takes place, the interdisciplinary field staff will probably

have to be reinforced with extension workers with special training in forestry.

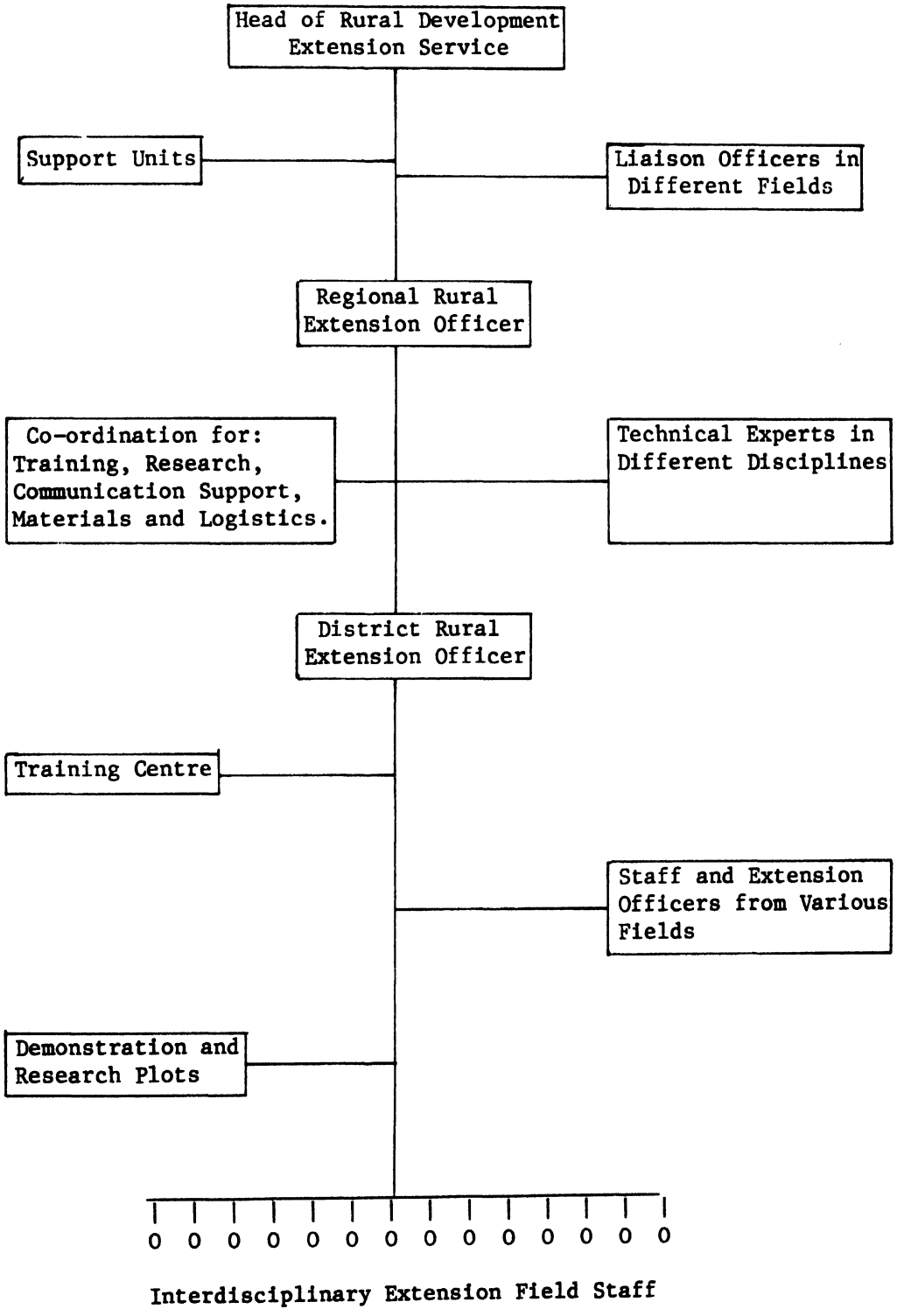


Figure 10.1 Structure of an Extension Service for Integrated Rural Development (based on Qamar, 1979)

As pointed out in the preceding section, interdisciplinary training for agriculturalists will increase the possibilities for co-operation between forestry and other sectors, even if no formal relationship exists between the extension agencies. Another method which can be used to stimulate co-operative relationships is to locate various extension services in the same building, or in buildings close to each other in the same compound. A common location can prove to be an effective and inexpensive way to bring about joint planning and implementation. The public also benefit because they can get a range of advice in the same place.

10.7 Public administration

Forestry extension activities are carried out in local communities. Most communities have some type of decision making body and a leader who acts as its spokesperson with assistance from other officials. This more-or-less formalisd way of handling community affairs and making community decisions is called local administration. The local administration may consist of more than one level. Each successive level of local administration encompasses a larger number of rural communities.

The community is also part of an administrative structure established by the central government, typically consisting of regional administrators or governors and chief district officers. This system is called central administration. In principle, the regional and district offices of the central administration look after central government activities within a given region. In practice, government activities may sometimes be restricted to tax collection, the maintenance of law and order, and planning.

A government agency like the public forestry administration cuts through both the central territorial administration and the local administration. The staff of the forestry administration look to the head of their organisation for direction. Budget allocations for local forestry activities are usually channelled through the forestry administration and not through the general government administration.

When a new project with its own resources is started, managers may feel little need to co-ordinate forestry activities with the central and local administrations. Initially, co-ordination may be seen as a time consuming and ineffective contribution to the project. They may even view the local administration as hostile towards forestry extension activities because it appears to represent the most wealthy and influential members of the rural community.

However, it is unwise to disregard local government officials. It must be remembered that self-sustaining forestry projects are the main goal of forestry extension programmes. Local administrations will continue to exist and wield power in the community long after the resources necessary to start forestry extension projects are withdrawn. The rural population recognises the power of local government administration and will be apprehensive if they think forestry extension projects do not enjoy their full support.

Therefore, forestry extension staff are advised to co-operate with the local administration as well as the sectors of the central government which are interested in forestry extension activities. Extension staff should not by-pass local representatives of the central government when dealing with farmers. Project activities should be integrated into the local administrative structure. This may well cause some friction and delays, but the results in the end may be more satisfactory.

Obviously, the involvement of government officials will not guarantee community participation, but it is necessary to ensure that projects continue to enjoy community support and, as a result, become self-sustaining, especially once government or external interest and financial support is withdrawn. Committed local, district and regional government officials can mobilise local support in order to pressure central government officials to reinstate or continue forestry projects.

The need to integrate extension programmes into government administration at all levels is well argued in Jon R. Moris' "Managing Induced Rural Development" (1981, p.49):

> "The paradox we see repeated in programme after programme is that in order to meet ambitious production goals new projects exclude themselves from the very organisational frameworks they are claiming to influence. It is time to admit that almost anywhere in the tropics, provided one has a cereal grain crop, plenty of money, a few proven managers, and freedom to work outside the local administrative system, it is possible to show dramatic production increases in the short run. But such success is not evidence that the long run capability of the indigenous system has been changed, or that a large number of peasants have been genuinely benefited."

10.8 Community organisations and non-government organisations

In forestry extension programmes, the rural community and individual farmers plant trees and utilise existing forest land as part of an effective land-use system. To develop the capacity to utilise forestry in this way, planning must take place within the community. However, the lack of local organisations has been found to be a key barrier to rural development. To ensure success, a forestry extension service must establish a partnership with organised community groups.

A high degree of community organisation can be observed in countries where forestry has become an integral part of rural development programmes. For example, in the People's Republic of China, agricultural communes have participated in massive afforestation programmes. Each commune balanced the land and labour inputs needed for forestry, agriculture and animal husbandry. Communes were supported by a national extension service motivated by the ideological fervour common in mass movements. Reforestation in the Republic of Korea was organised through a system of 21,000 Village Forestry Associations, Regional Forestry Association Unions and a National Federation of Forestry Associations. About half of Japan's forest land is owned by smallholders with less than 5 hectares. Village Forest Owners' Associations have been organised to carry out several activities aimed at the rationalisation of forest management and increasing forest productivity. Finally, Forest Owners' Associations in Sweden have played an important role in the improvement of forest utilisation and quality on small forest plots owned by farmers.

These examples illustrate that community organisations which co-ordinate the forestry activities of farmers have been successful in countries where the ownership of forests is both collective and in private hands.

Existing associations or co-operatives which manage forests as an important part of their work are, of course, ideal partners for a forestry extension worker. However, local organisations specially designed to fit forestry extension purposes are not likely to be found when extension

programmes begin, and they must be developed gradually.

Traditionally, reaching a consensus and co-ordinating joint activities in the rural community was accomplished through multifunctional organisations which could integrate new tasks into the village's customary activities. In many countries, these traditional organisations have been replaced by a formal administration which may still co-ordinate all village activities, and therefore must be utilised when starting forestry extension projects.

Afforestation projects require large amounts of manpower at irregular intervals, especially during planting, weeding, thinning and harvesting. This labour often must be paid for in cash or in kind by the forest manager responsible for the project or by the extension service. Perhaps unintentionally, a group of day-labourers is therefore created. These workers may in fact be the principal beneficiaries of the extension service. If they are poor or landless, it is difficult to imagine the hardships they suffer as a result of their irregular employment. Owing to their precarious economic situation and the income offered by the extension service, they have a natural interest in seeing that forestry activities are well managed so that the benefits are distributed equally to participants. Attempts have been made in India to organise day-labourers into co-operatives and unions, but with little success. Nevertheless, the extension worker should regard these labourers as important partners, and must search for ways to organise them.

In the absence of community organisations to manage forestry activities, popular movements may spring up, motivated by an economic need for trees and wood. The "Chipko" (tree-huggers) phenomenon, a Gandhian movement started in Utter Pradesh, India in 1973, by community members who clung to trees in order to save them from felling by contractors is one example. The Chipko movement went on to gain a large following, especially amongst village women. Popular movements can generate much enthusiasm and mobilise voluntary labour. An extension organisation can promote forestry extension goals by channelling this popular power into constructive directions.

An extension organisation can also seek partnership with organisations and groups that work for the spiritual and material improvement of the rural community. Religious organisations, missions, youth groups, women's organisations, political organisations, environmental groups and international aid organisations are examples. These voluntary, and often idealistic, groups can lend moral support to forestry extension programmes both at the national and local level. They can be useful channels for transmitting information to farmers, they can run tree nurseries, take part in planting and provide logistic or financial support.

10.9 Markets

Many public forestry administrations fix wood prices at a low level. The government may want to provide cheap raw materials for public forest industries or industry in general. The political power or patronage of logging concessionaires may force the government to maintain the low prices. The government may also want to placate a restive urban population with cheap charcoal and construction material, or generate foreign currency by promoting timber exports.

Whatever the government's reason for keeping wood prices low, a result of this policy is the depletion of the forests. Since the disappearance of forests directly affects rural incomes the government is subsidising wood-based industries, wealthy businessmen and the urban population at the expense of the rural poor. Forestry policy-makers must persuade governments that low

prices are in fact an impediment to rural development.

While fixing prices too low retards rural development, market mechanisms can promote development. The PICOP papermill in the Philippines created a market for trees planted and cared for by local farmers by guaranteeing good prices. Landowners in Andhra Pradesh, India, who established fuelwood plantations have discovered that by selling logs as telephone poles, the densely planted trees could be thinned profitably.

Market demand can motivate the planting of trees. If an extension worker can make the market operate by offering good prices, he may not have to push very hard to get the rural population to accept the idea of afforestation.

Three factors are necessary to create this market force:

- a saleable product;

- a marketing channel;

- a good market price.

An extension organisation should gather data on all of these factors in order to inform the rural community. Wood is, however, not the only marketable product; manufactured items such as charcoal and handicrafts in addition to minor forest products, can also be sold profitably. In order to obtain information on markets and prices the extension organisation may seek advice from national and international agencies, and trading organisations. Surveys of the raw material needs of nearby industries and timberyards can also prove useful. If forest products are not marketable in a region, the extension organisation should try to persuade industries and development agencies to undertake suitable schemes to make use of the production.

Marketing channels also must be studied and developed. If a single dealer buys the output of many producers, prices are likely to be low. In such cases the extension organisation may advise producers to form co-operatives, or to organise transport to a market where several buyers will compete for local produce.

Opening up new markets for the rural community's forest products tends to benefit those individuals and communities already earning an income from the forest. For example, a new road may make it easy to transport fuelwood from a community woodlot to a nearby market. However, the new road can also reduce the income of women who carry headloads of firewood to the market. Similarly, good wood prices may result in accelerated deforestation instead of expanding sustained-yield forestry, if the rural community is not able to control its citizens or if outsiders have access to community forests to cut and sell logs. The utilisation of market forces in forestry extension must therefore be based on a careful study of possible effects on forest protection and incomes, especially amongst the poorest members of the community.

11. MANAGING THE EXTENSION ORGANISATION

11.1 Introduction

The formal organisational models which were given in Chapter 9 are in fact only guidelines to help managers make decisions about deployment of resources and assignment of extension tasks and administrative responsibilities. In practice, the extension organisation will not conform exactly to the ideal models. Rather, the structure of the organisation will evolve as managers deal with specific tasks and daily problems. Extension managers must always be ready to take into account factors which are not anticipated in formal models. As managers adapt the formal extension organisation model initially chosen to deal with everyday tasks and actual problems which arise, the true structure of the extension organisation will evolve. In the same way, the decisions made by managers will determine whether or not the actual structure of the extension organisation can put into practice the ideas and objectives of extension forestry.

Structure is, by definition, static. Initiative on the part of managers is necessary if a formal organisational model is to be successfully transformed into a dynamic combination of people and resources capable of achieving specific forestry and development goals. Moreover, even a newly-created organisation begins to deteriorate and rigidify if management initiative is lacking. For example, an organisational structure based on joint decision-making will disintegrate if the forest extension staff do not make a constant effort to include the community in discussions concerning policy and operations. Similarly, an organisation which relies on close communication between an extension officer and his superiors will break down if the information supplied by the field staff is insufficient to form a basis for decision making by higher managers, or if the managers do not fully utilise the information they receive from the field. The deterioration of extension organisations cannot be checked unless managers constantly recreate their organisations in order to implement extension strategy and keep the principles of forestry extension alive.

It is clear then that an extension organisation cannot function properly without managers, but a manager must not be just a career bureaucrat or a competent technician. A manager must be able to set objectives skilfully. He or she must be able to mobilise and co-ordinate people and resources to achieve these objectives. Therefore, when managers are employed by a forest extension organisation, specialised managerial skills must be sought. Extension organisation designers must also build in managerial flexibility by placing a premium on the achievement of specific extension objectives rather than the following of rigid bureaucratic procedures. This flexibility will allow skilful managers to adapt the organisation to the day-to-day realities of extension work in particular situations.

In addition to organisational flexibility and looking for specific managerial skills when hiring managers, management techniques should be included in continuing education courses for professional foresters.

In this chapter, the following management functions are discussed:

- leadership;
- policy formulation;
- planning and budgeting;
- creation of management information and control systems;

- management of human resources;

- establishment of reward systems.

An extension organisation can only be effective if these management functions are carried out with skill and resourcefulness.

11.2 Leadership

As has been shown, resources such as money, specialised personnel and legal support are needed in order to create a forestry extension organisation. Forestry extension managers must be leaders in order to compete successfully with other government organisations for scarce resources. Leadership must be established in political circles by encouraging public discussion about forestry development. Politicians, professionals, trade union leaders, cultural figures and religious leaders must be encouraged to publish articles, make speeches and broadcasts, and utilise any other opportunities which may arise to explain the advantages and argue the necessity of forestry extension work. If an extension manager can successfully promote a continuing public discussion of forestry matters, the political influence of these opinion leaders will help to secure the necessary resources to support extension activities.

The support solicited from civic leaders and politicians should extend beyond the symbolic planting of a tree to initiate a reforestation campaign. Their support must include aid in the formulation of forest legislation and discussions in planning commissions. In addition to making public statements of support for forestry extension, they must be asked to lobby for increased budget allocations, the appointment of dedicated and trained people to head other agencies which are to co-operate with the extension organisation, and the creation of new government agencies if these are required. This sort of political support was achieved in India when the late Prime Minister Indira Gandhi included social forestry, particularly agroforestry and fuelwood plantations, as one of that nation's twenty national priorities.

Extension managers must also exert political leadership within the extension organisation itself. The mobilisation of "outside" support must be accompanied by an effort to develop a clear commitment to forestry extension goals on the part of the extension organisation personnel. Every member of the organisation must become a leader, encouraging his or her co-workers and their clients to act in accordance with forestry extension values and to pursue extension strategy energetically. This is how a professional spirit which is so important for successful extension work develops within an extension organisation.

The setting of priorities is a vital leadership task for extension managers. If managers obtain the resources necessary to ensure the success of extension activities, local demands and the activities required to fulfil these demands will quickly outstrip available resources. Managers are then forced to set priorities. They must channel funds and human resources directly into extension work and extension policy discussions. Setting priorities means transferring resources from other government activities so that extension work can be expanded. However, the direction of resources into extension work is often difficult because the arguments presented by managers in charge of competing activities are nearly always legitimate and persuasive. Top forest administration managers can use both "hard" and "soft" techniques to set priorities.

"Hard" priorities include:

- increasing budget allocations for extension activities relative to other activities;

- transferring personnel, materials, buildings, etc. from other forest activities to extension activities.

Amongst the "soft" priority setting techniques are:

- influencing the values, attitudes and the development concepts held by forestry and agricultural professional staff, (conservation foresters or livestock extension staff, for example) so that they promote forestry extension as they go about their routine tasks. This orientation can be accomplished by including forestry information in professional training courses and increasing contacts between professionals and extension foresters;

- assigning, whenever possible, the best material resources and the most capable personnel to extension activities;

- solving extension problems first when two issues appear at the same time. For example, if several vacancies arise in the forestry administration, the forestry extension post can be filled first.

Steps which can be taken to develop a leadership capacity throughout an extension organisation include:

- appointing able and dedicated people to senior management positions;

- organising extension-related courses for higher level officials;

- holding regular meetings where managers and other personnel discuss extension policy and its implementation;

- establishing recruitment procedures for all levels in the organisation designed to find people who possess abilities and attitudes for extension work.

11.3 Policy formulation

Securing resources necessary to implement forestry extension strategy is the leadership task facing extension managers. However, a strategy must be adapted to fit the specific conditions in the country. A policy statement is used to define forestry extension strategy in a given country or region. Policy formation is another management function. Forestry extension policy normally consists of broad guidelines which are used by managers to form operational plans. The policy can be used to explain what the extension organisation intends to accomplish. For example, extension policy in Sweden was initially aimed at getting farmers to consider replanting trees after logging. In Jamaica, job creation is promoted as an extension policy. The role of community forestry in protecting the environment is included in the policy of Nepal's Soil Conservation and Watershed Management Department. Fuelwood production is the main policy goal of social forestry projects in several Indian states.

An extension policy must not be imprecise, merely restating general forestry extension goals. Initial extension policy should concentrate on one modest goal and later expand to include other specific objectives. An extension policy must justify these objectives. When a policy contains one or more closely defined goals it is easier for managers to organise the support of influential individuals and groups. Simple statements of policy also help managers to come up with operational plans and evaluate achievements of policy objectives.

Extension policy also provides a means for managers to co-ordinate the activities of different government agencies and departments, as well as those of other non-governmental groups. For example, a policy may require that a series of land-use issues be resolved. This in turn could mean that land surveys have to be made. Education programmes in schools might have to be modified. Commercial logging systems may have to be changed. The structure and location of forest-based industries may have to be reconsidered. Forest laws may have to be modified. Other agencies and groups which have a vested interest in these areas are more likely to support the necessary changes if their representatives have participated in the formulation of the extension policy.

In addition to analysing forestry problems and stating extension objectives, extension policy must also specify the methods to be employed to achieve these objectives. For example, the policy should state clearly the institutional changes and the time period required to implement the policy, as well as the additional financial, material and human resources necessary and how these resources are to be obtained. If the procedure is clearly set out when extension policy is being formulated politicians, other agencies, and the non-governmental groups which are to participate in the implementation process are more likely to recognise the need to change their attitudes and activities and take appropriate action.

In Sweden, forest policy is formulated, as is policy in other areas, by a committee of experts in consultation with a range of interested individuals, agencies and non-govermental groups. In India, a broad forest policy was produced by the national Commission on Agriculture. Nepal's National Commission on Soil Conservation includes representatives from other ministries. These are all useful examples of how extension policy should be formulated. In all of these countries, policy formulation is recognised as a complex task which requires time, resources and co-ordination amongst interested groups and individuals. In each case, extension managers have concluded that broad participation in policy formulation can promote the understanding and commitment which helps to ensure the successful implementation of the policy objectives.

11.4 Planning and budgeting

Planning helps to minimise uncertainty and to co-ordinate different operations which make up extension activity. It is, therefore, required at every level in the extension organisation.

11.4.1 Forecasting

Every manager is uncertain to some extent about what the future holds. Forecasting is useful if it helps managers to improve their handling of future events. Its aim is to help managers develop a comprehensive understanding of the range of the environmental factors facing the extension organisation as a whole, as well as its various operational units. A forecast contains alternative descriptions of future events including, for example, "worst case scenarios". Changes in the environment or in

circumstances which would require significant modification of the extension organisation's activities should be the main subjects of forecast planning. For example, forecasts should be utilised if the presumed survival rate in a reforestation campaign is uncertain, especially if a low survival rate would require a major reorientation of the planned activities. In this case forecasting may serve to reduce the degree of uncertainty as a result of a thorough analysis of environmental and technical factors which determine survival rates. Even if a significant degree of uncertainty remains, the forecast can increase management's understanding of what could go wrong and why.

Forecasting does not demand sophisticated techniques. A manager can forecast by simply listing the inputs necessary for a certain activity and the environmental variables which could affect this activity. He then tries to predict the availability of inputs, the environmental conditions which are likely to prevail, and the possible consequences of variations in either inputs or environmental conditions.

Elaborate forecasting techniques are also available to the extension manager. These include trend projection, and computer models designed to predict future changes in growing stock and the availability of different types of timber. These should only be considered when the scale of the operation justifies the expense and effort involved.

11.4.2 Suggesting alternatives

Forecasting can be used to develop and evaluate policy alternatives. It provides the extension manager with the basis for the development of plans for subsequent courses of action and contingency plans in the event that predicted environmental conditions do not materialise. The analysis of different courses of action increases the manager's awareness of alternatives and minimises the risk of impromptu, and usually inferior, solutions to unforeseen events.

11.4.3 Interdependence

Forecast planning is designed to cope with and possibly reduce the inevitable uncertainty involved in extension activities. There are also planning techniques which can help the extension manager to deal successfully with the interdependence of the operational units within the extension organisation. Field units depend on the central office for financing. The timing of some field activities may also depend on the schedules of other extension work. For example, the planting of trees must be preceded by the preparation of the land. Budgets and work schedules are the major techniques for handling interdependencies.

11.4.4 Budgeting

A budget is a plan to ensure that each operational unit within the extension organisation receives sufficient resources to complete its component of the overall extension plan. A budget usually consists of projections of how much money each unit is to be allowed to spend on its different extension activities. Its main function is to ensure that the different operational units do not overspend on any one activity. This sort of budgeting process is of limited value to the extension organisation manager.

A budget serves a proper planning purpose only if it specifies, in addition to projected expenditures for inputs, the type and quantity of production envisaged from each operational unit. This is called performance

budgeting because instead of merely assuring that a projected amount of money is spent to finance a projected number of man-hours of work, performance objectives, for example, planting a certain number of hectares, can be compared with the planned cost of meeting these objectives.

When performance budgets are drawn up for the main objectives or programmes of the extension organisation the process is called programme budgeting. For example, these programmes can include:

- providing the public with forestry information;
- providing training and technical advice to the community;
- undertaking forestry activities;
- staff development activities;
- administration of the extension organisation.

Programme budgeting requires that performance targets and appropriate budget allocations be set for each of the operational units to maximise their performance, in relation to the budgeted resources. This can be achieved if extension organisation managers observe the following general rules.

Managers must communicate in a clear way to their subordinates the performance expected and the resources which will be available to achieve these objectives.

The performance required must be realistic as well as appearing reasonable to subordinates.

Generating a commitment to reaching performance goals can be facilitated if the objectives and resource allocations are determined through a process of joint discussions with subordinates. This is called "bottom up" budgeting, as opposed to "top down" budgeting when managers unilaterally determine objectives and resource allocations.

"Bottom up" budgeting involves these three basic steps:

- general performance targets are communicated from top management to the organisation's operational units, especially when targets are different from previous periods of operation;
- officials in the units then specify the results they intend to produce in the course of their different activities, and the resources necessary to achieve these results;
- if the organisation managers are not satisfied with either these performance targets or the resource requirements suggested, joint discussions must be held before the budget is finalised.

Managers at all levels in the extension organisation must be made conscious of the fact that they will be evaluated on their performance. Reporting and accounting systems must be developed to carry out this evaluation.

11.4.5 Project planning and co-ordinating activities

The budget provides a means of reducing competition for resources between operational units because it allocates specific resources for fixed periods of time, usually one year. However, this is really outline planning and is not sufficient to co-ordinate the day-to-day activities and the resources required for complex programmes. The manager responsible for part or all of a project may need to draw up a planning display showing when each activity should be started and by whom, in order to avoid delays in the overall performance process. Simple graphical displays with lines to indicate the weeks during which a certain activity is to be carried out may be adequate. More complex network planning techniques, PERT (programme evaluation and review techniques), or "critical path" planning can be used for more complicated project co-ordination problems. Exceptionally large-scale projects may require a special officer or even an entire operational unit to follow up and make adjustments in plans once they are initiated. An important part of co-ordination planning is bringing pressure to bear on suppliers and operational units that have difficulty in meeting assigned deadlines, thereby endangering the over-all implementation schedule. Other planning tasks include issuing new deadlines when rescheduling is necessary, and suggesting the temporary allocation of idle resources to activities in danger of not being completed on time.

11.5 Management information and control systems

Planning, and initiating action based on that planning, is part of a manager's task, but in practice, development does not always follow pre-determined plans. Therefore, managers need a continuous flow of information on which to base decisions about modifying extension activities or beginning new action. Examples of this kind of information are data on the productivity of resources, the cost of different kinds of operations, and the production capacity of the many operational units within the extension organisation. Management information systems must be constructed in order to provide managers with all the information they require. The systems should be compatible with the existing planning and budgeting systems in order to provide the necessary information and facilitate planning control.

Ideally, the extension organisation's accounting system should be designed to provide different management levels with speedy and relevant reports, at regular intervals. This may require modifying the existing accounting system which is likely to be based on the government's general accounting system. Special difficulties may be encountered in keeping track of the resources and operational units the extension organisation shares with other activities. It may be hard to ascertain how much of a resource or unit's manpower has been applied to extension work as opposed to other activities. If it is impossible to integrate completely the accounting system with the managerial information system immediately, extension organisation managers can develop some relatively simple reporting routines which can provide the basic information they require.

The management system established in an organisation must be practical and one which managers can easily use. It is important to remember that formal reporting systems always compete with informal ways in which individual managers obtain and record information. They acquire the data they need for their decisions from personal observations and from what other people, both inside and outside the organisation, tell them. They may retain this information in their heads or in the proverbial "small black book". A formal information system will be used only if managers believe it can provide data which are at least as extensive, trustworthy, up-to-date and relevant as their own private information gathering techniques.

When information is readily accessible to managers and when it can be gathered and processed in the course of the operational unit's daily activities, it is not necessary to construct a system which requires data to be sent to a central accounting office, later to be sent on to managers, usually after considerable delay, in the form of reports. It is preferable to process the data necessary for the self-regulation of an operational unit within that unit.

Different types of data presentation and reports may be required by different management levels. For example, reports which provide a wealth of detail without presenting the aggregate figures of interest to the manager will have little practical value and may in fact overburden the user.

Listed below are the main types of data that an extension manager needs from an information system. The manager who has a number of subordinate managers reporting to him will be aided by tabulations which show these figures for each subordinate unit, allowing him to compare the units.

Performance, production and output data indicating the volume of goods produced or services rendered. Examples: the number of villagers who are participating in a programme; the number of nurseries established; the number of hectares planted; the number of farmers trained; increase in the growing stock, quantities harvested; fees collected; sales revenue.

Quality data indicating the quality of the products produced. In most cases, the quality of each product unit produced cannot be assessed. Much information about quality can be obtained from consumer complaints, the reaction of clients and through field visits. The reliability of quality estimates can be increased through the use of random samples based on different criteria. The quality criteria chosen should be subsequently evaluated by an independent observer. Examples: survival rates; quality of weeding and thinning; attitudes of farmers and local politicians; quality of knowledge and skills imparted by training courses; attention secured and information value of communications materials utilised.

Resource and capacity data. Examples: number of employees according to classification; number of types of organisational units; vehicles and other infrastructure; nurseries; land areas and different types of forests; available financial resources.

Resource utilisation data. Examples: personnel time spent on productive activities; operational time of vehicles and other equipment; training capacity utilised; available resource utilisation (money, seeds, plants, land).

Productivity data indicating the performance of resource units. Examples: ratios showing per 1,000 man-hours or per staff member employed, how many plants are produced, how many hectares are planted, how many communities are contacted, how many persons are trained.

Cost data indicating the costs of different types of resources and outputs. Examples: cost per unit of resource utilisation (per man-hour, per machine-hour, per kilometre of vehicle use); cost per unit produced (per hectare planted, per thousand plants grown, per farmer trained). Figures showing cost per unit of output indicate the productivity of money.

Data provided for a specific time period should be accompanied by reference information which allows the manager to evaluate the data. This reference information could include any or all of the following:

- what has been budgeted (planned) for the period;
- the corresponding figure achieved in earlier periods;
- the corresponding figure achieved by comparable operational units;
- the targets to be met.

Discrepancies between reference information and data for a specific time period indicate a possible need for corrective action, a change in plans or a re-evaluation of the basic concepts on which the extension programme is based. These discrepancies must be analysed and their causes identified. A well-designed managerial information system can greatly facilitate the search for possible explanations. Performance which has not met expectations may be explained by a shortage of resources or the low productivity of resources. Once satisfactory explanations have been found, various alternatives must be considered and a suitable plan of action worked out.

Designing a good managerial information system is vitally important to ensure the efficient functioning of an extension organisation. Designing a comprehensive information system requires specialists as well as the active involvement of the project group line managers. In addition, each manager should identify his information needs, and attempt to develop a simple and workable system to fulfil these needs.

The data which enters the managerial information system is likely to be distorted, especially when it is utilised to determine promotions and rewards. Data may also be distorted by managers and other personnel in order to hide the use of funds for private or unauthorised purposes. Precautions must be taken in the design and use of information systems to decrease the chances of data distortion, and to avoid the use of this inaccurate data in decision making. Periodic internal audits to check the validity of reports passing through the information system can help to ensure that the data are trustworthy.

11.6 Human resource management

As in any organisation, able and dedicated managers are essential for the success of a forestry extension organisation. Obtaining this sort of manager involves three processes: selection, development and training. These activities are called human resource management, a technique which also includes finding and developing personnel for non-management tasks and positions. In addition, human resource management involves the implementation of strategies and techniques to achieve and maintain a high level of effort on the part of the extension organisation's personnel.

11.6.1 Selection

Through employing the right persons, senior management has the opportunity to influence the character and capacity of an extension organisation when it is initially staffed, and later on, as positions become vacant and are refilled. Great care must be taken in the search for, and selection of, managers at all levels. An important selection criterion is the determination of whether or not the candidate is a good forester. Managerial candidates at all levels should also believe in the principles of extension forestry, and possess a capacity to work co-operatively with

farmers and other individuals outside the extension organisation. Many techniques can be used in the process of selection of a manager. School grades and written evaluations by former employers, conversations with people who have worked closely with the candidate, an essay by a candidate describing himself, interviews and various kinds of tests. Well designed selection procedures have improved management performance in business organisations considerably. Performance in the extension organisation should also improve if the appropriate kind of managers are selected.

More information concerning relevant selection criteria will emerge during the actual operation of the extension organisation. For example, senior managers can determine whether forestry staff working close to their home districts are more successful extension workers than staff recruited from parts of the country which are distant from their work-place.

11.6.2 Management development and in-service training

Professional development and in-service training of extension staff differs somewhat from the training received by foresters involved in traditional or commercial forestry. Because establishing good contacts with the community is so important to extension work, it may be necessary to require that the extension staff be assigned to a certain area for a prolonged period of time so that they can develop a close relationship with the community. This is in marked contrast to traditional forest service practice, in some areas, where staff are assigned to new posts on a regular basis and for relatively short periods of time. One of the reasons for this practice is to prevent the forester from establishing too close a relationship with the local population.

The extension organisation must include regular in-service training for managers and other personnel. This training should emphasise the value of extension work; that is, to explain its character and show how extension work is different from traditional forestry activities. Another function of in-service training programmes is to teach the special skills and approaches required in extension work. The programmes should also teach general management skills such as those described in this chapter. In-service training serves to disseminate new information generated by research and the experience generated through the actual operation of the extension organisation. Finally, regular training sessions will provide the personnel involved in extension work with an opportunity to exchange experiences and to develop a professional spirit.

11.7 Reward systems

The encouragement of desirable behaviour is also a component of human resources management. Here are some examples of the kind of behaviour that reward systems should encourage in the extension organisation:

- engaging in social activities such as talking to community leaders to find out about community needs, talking to farmers to find out what kinds of trees would benefit them, getting out of the extension office and walking to farms to talk to people, talking to school children and their teachers, forming community forestry committees and contacting other development projects to find out if forestry and soil conservation can be integrated into extension activities;

- planning and implementing forestry operations within one's own area. This includes gathering information about the assigned area (land types, land use and availability, farming and

grazing patterns, demand for fuelwood and other forest products, forest quality, forest yields, soil erosion and the condition of watersheds). Participation in the implementation of operations may mean encouraging and supporting the entire range of forestry activities at the community level (setting up nurseries, collecting seeds, organising plantations and protection activities, arranging the distribution and marketing of produce, training farmers and forestry workers);

- encouraging subordinates and other participants when a certain forestry task is to be carried out;

- showing initiative, making decisions, not waiting for orders or referring decisions to superiors;

- delegating authority and decision making powers to subordinates;

- working in difficult regions and inaccessible areas rather than urban centres or regions where problems are not acute;

- putting in a full day of hard and dedicated work.

These types of desirable behaviour contrast sharply with behaviour sometimes observed in public administrations. Undesirable behaviour to be discouraged includes:

- treating the community as potential law breakers and avoiding contact with them whenever possible;

- working on administrative matters in the office, and not being greatly concerned about what is going on in the field or in forestry operations in general;

- showing indifference towards subordinates;

- referring decisions to superiors and avoiding personal responsibility;

- not delegating authority;

- pursuing administrative posts in larger and centrally located towns;

- putting in less than a full day of disciplined work.

Behavioural psychology provides a simple explanation as to why people demonstrate certain behaviours and not others. People tend to do the things for which they are rewarded and abstain from behaviour for which they are likely to be punished. In order to ensure that extension organisation personnel engage in desirable behaviour, reward techniques must be explored.

"Reward" is taken to mean anything that is valued by the person who receives it. Rewards only promote desired behaviour when they clearly depend on that behaviour. Unfortunately, available rewards within an organisation are often only indirectly dependent upon performance (desired behaviour) and are distributed on considerations such as personality, deference to superiors, not making errors and not coming up with troublesome new ideas.

A person's activities precipitate innumerable responses, many of which may function as rewards. In addition, what is seen as a reward by one person may have no value to another. The following discussion is limited to four main types of rewards which can motivate extension personnel:

- money and other material benefits;
- promotion and power;
- recognition and prestige;
- assignment of interesting tasks.

11.7.1 Material rewards

Pay increases and benefits such as travel and housing should be distributed, at least to some extent, on the basis of performance and the demonstration of desirable behaviour. To do this, it is usually necessary to give managers a say in the distribution of these rewards to their subordinates. Managers also should be taught techniques to motivate their subordinates.

11.7.2 Promotion

In principle, pay increases and other material benefits in particular can be granted rather quickly, once a manager has observed a subordinate acting in a manner which should be rewarded. Promotions have a greater impact on the extension organisation and the individual and therefore cannot be utilised too often in rewarding the same person. For this reason decisions about promotions within a civil service organisation are often based on known and acceptable criteria, rather than being dependent upon a series of subjective reasons individual managers may consider important and which lead them to suggest promoting a subordinate in the first place. Behaviour criteria which reflect an employee's capacity to deal with extension issues at a higher level should be included in the promotion considerations when objective systems to assess performance are being developed.

11.7.3 Recognition and respect

Recognition and respect are also important incentives which the manager can use to motivate subordinates. Unlike money and promotion, the amount of recognition and respect that a manager can display to his subordinates is not determined by rigid bureaucratic rules. The effective use of recognition to reward desirable behaviour depends only on a manager's ability to study a subordinate's or a colleague's performance and then compliment them on jobs well done. Of course, the form that recognition takes may vary: simply complimenting a person; making a public statement; handing out decorations and prizes or arranging for a prestigious individual to pay a compliment. It should be remembered that merely showing interest in a person's work often functions as a reward in itself.

Recognition and respect not only flow from higher levels in an organisation to its lower levels, but also function among colleagues and from the bottom up. By letting superiors know when they have made wise decisions and taken effective action, dedicated subordinates participate in the gradual improvement of upper level managers.

Recognition and respect may also come from the public. This type of reward is especially important for personnel involved in the different forms

of extension work. Because community participation, communal labour and community relations are primary objectives of forestry extension activities, steps must be taken to utilise the respect and gratitude shown by villagers to motivate extension foresters. Superiors should listen carefully to what community leaders and representatives have to say about their subordinates. For example, public meetings can be arranged so that villagers, forestry workers, extension officers and managers can discuss the progress made on specific projects or the extension programme in general.

A large part of a recognition and respect reward system can be handled by individual managers in their relations with subordinates. Performance and pay incentives are more formal reward techniques. In order to ensure fair treatment of individual employees, the organisation's personnel department may issue guidelines for pay increases and promotions and keep records of these material rewards. However, these powerful instruments for rewarding employees must not be bureaucratised totally. Individual managers should participate in the granting of promotion and pay rises.

11.7.4 Internal rewards and job design

People do not work just to obtain rewards. Work itself can be interesting and challenging. Doing a good job can be a source of satisfaction and pride. A deep respect for extension work can be fostered amongst foresters by including extension forestry as an important part of forestry education at both the professional and technical levels. Foresters may gradually come to see extension work as rewarding in itself if training courses focus on the challenging nature of the work and encourage participants to relate their personal experiences and the problem-solving techniques they have adopted.

The way jobs and specific tasks are designed can influence the extent to which they provide job satisfaction to individual foresters. Tasks which are designed to produce tangible results and a recognisable finished product are more rewarding to the forester than tasks which form a small part of, and have an unclear relation to, a larger project. A degree of autonomy and control over working conditions can make a task more rewarding for a forester than a job that is controlled by others, especially if that control is arbitrary or unpredictable.

In general, it is also more rewarding to work in a social context which permits the forester to maintain contacts with colleagues and clients than it is to work in isolation. Therefore, work design should not be confined to the jobs and tasks of individual foresters, but rather, should consider group tasks and the interdependence of different jobs.

11.7.5 A personal planning system

Experience gathered from many organisations has shown that a yearly review conversation between a superior and each of his or her subordinates can provide feedback about the success of the year's activities and information useful in planning ways to support the subordinate's work in the future.

Each subordinate should meet with his or her immediate superior once a year to discuss work experiences and the problems faced during the previous twelve months. The conversation should begin with a review of the targets and goals that the subordinate set for himself. These targets and goals are not necessarily the official extension objectives produced by the organisation's planning and budget system. Rather, they should be the objectives the subordinate considers to be personally important.

The conversation should then move on to the subordinate's evaluation of his or her own performance in relation to these personal goals. Explanations for both failures and successes should be sought, mainly in order to improve planning and performance during the coming year. The superior should then offer his or her own evaluations and explanations.

After the subordinate's performance during the previous year has been analysed, the conversation should turn to the coming year. The subordinate should be asked to talk about what he or she hopes to accomplish and the strategies for achieving these objectives. The superior should offer comments on both the objectives and the feasibility of achieving them.

The conversation should be ended with a review of the subordinate's personal ambitions and the likelihood of achieving them. These ambitions may include: obtaining better facilities, more pay, more training, study tours, transfer to another post, promotion, etc.

A brief summary should be produced of the conversation and kept by the superior as reference information for the next personal planning conversation with the person. The subordinate should also keep a copy.

Ideally, these personal planning conversations should begin at the bottom of the organisational hierarchy. The extension officer should meet with his or her subordinates and then with the superior officer, and so on up the ladder to the head of the extension organisation. This "bottom up" approach ensures that each meeting at successively higher levels is based on realistic assumptions about what subordinates can achieve and their ambitions.

Obviously, these annual review conversations will produce a great deal of information which can be used in the extension organisation's planning system. However, it should be emphasised that the conversations are not part of either the formal planning and budgeting system, or the merit rating system. Individuals should not be required to use official targets as personal objectives.

The function of the review session is to provide both the superior and the subordinate with a personal understanding of each other's expectations and ambitions. It should also be an exercise in setting goals; the conversation should end with the participants becoming personally committed to specific objectives. These personal commitments will motivate employees and managers to achieve the extension organisation's official goals and targets.

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