RURAL DEVELOPMENT FORESTRY NETWORK

NETWORKING IN ACTION:
FORESTRY EXTENSION MATERIALS IN REVIEW
Edited with an introductory essay by Edwin Shanks

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EDITOR'S NOTE

All items in the extension collection are now catalogued and housed in the ODI library, where they are available for consultation. However, please note that, even if copyright permitted (which it does not in all cases) we **do not** have the resources to despatch photocopies of individual items on demand.

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Edwin Shanks

SUMMARY

This paper is a synthesis of over 170 items of forestry extension literature sent to the Rural Development Forestry Network by its members. It is derived from 35 countries, although some items are not country-specific and have wide potential relevance. The paper is presented in two parts. In part one, the overall characteristics of the material are analyzed in an essay illustrated with descriptions of many of the more notable items. This is followed in part two by an annotated bibliography, listing all items. The essay begins with an examination of the intended audience of the material, and a classification of the documents into five broad types (operational manuals; technical handbooks; booklets and pamphlets; series and periodicals; and flipcharts). The material is then examined according to subject matter, noting that the greatest coverage is of nursery practices and tree species (descriptions and husbandry), whilst relatively little covers certain other matters such as natural forest management, and legislative issues. The conceptual structure of the various materials is also considered, as well as the manner of its production and use. Finally, a number of conclusions are drawn with regard to the changing nature of the forestry extension "message", and apparent gaps in the type of extension materials currently available.

RESUMEN

Este artículo es una síntesis de más de 170 documentos sobre extensión forestal enviados por los miembros de la Red Forestal de Desarrollo Rural a la sede de la Red. Se base sobre estudios de caso de 35 países, aunque algunos documentos no son específicos a un país en particular sino que cubren un marco más amplio. La primera parte del artículo analiza las características generales del material enviado, describiendo los casos más notables a modo de ilustración. La segunda parte es una bibliografía anotada, dando un listado de todos los casos incluidos. El ensayo empieza con un estudio del tipo de público al que se dirigen estos materiales, y propone clasificar los documentos en cinco categorías (manuales operacionales; guías técnicas; folletos y panfletos; publicaciones periódicas y seriales; y rotafolios). Después, los materiales son examinados por temas, haciendo relucir el hecho que los temas de mayor cobertura son prácticas de viveros y especies de árboles (descripciones y cultivo), mientras que otros temas, tales como el manejo de bosques naturales y aspectos legislativos, reciben relativamente poca cobertura. El ensayo también analiza la estructura conceptual y la forma de producción y uso de los diferentes documentos. Al final, se plantean varias conclusiones con respecto a la naturaleza cambiante del "mensaje" de la extensión forestal y sobre los vacíos percibidos en el tipo de materiales de extensión actualmente disponibles.

RESUME

Le présent document est une synthèse de plus de 170 articles de vulgarisation forestière qui ont été envoyés au Réseau Foresterie pour le Développement Rural par les agents membres. Il est la compilation de travaux provenant de 35 pays, même si certains articles ne sont pas spécifiques à un pays en particulier mais ont une portée potentielle bien plus étendue. Le document se

présente en deux parties. La première partie est une analyse des caractéristiques générales des matériaux écrits, laquelle forme un essai illustré par la description d'un bon nombre d'articles les plus notoires. La seconde partie est une bibliographie annotée donnant une liste de tous les articles. Pour commencer, l'essai procède à un examen du public concerné par ces écrits et à une classification des documents en cinq catégories principales: manuels opérationnels; guides techniques; brochures et opuscules; séries d'ouvrages et périodiques; et feuillets documentaires. Les matériaux écrits sont ensuite examinés par sujets dont le plus important couvre une présentation des techniques de pépinières et des différentes espèces d'arbres (descriptions et gestion); les autres sujets tels la gestion des forêts naturelles et les problèmes de législation sont relativement peu couverts. Une importance est aussi donnée à la structure conceptuelle des différents matériaux ainsi qu'à la façon dont ils sont produits et utilisés. Enfin, un certain nombre de conclusions sont tirées en ce qui concerne la nature évolutive du "message" de vulgarisation forestière et les vides apparents qui existent dans les types de matériaux de vulgarisation actuellement disponibles.

1 INTRODUCTION

This review of forestry extension literature arose as a direct result of the networking activities of the Rural Development Forestry Network. In recent years many people working on forestry projects have written to us asking for guidance on the production of extension material, both for general publicity and for more systematic teaching purposes in the field. People also enquired whether there were good examples we could direct them to in the ODI library. Initially, we had no clear idea of what was available, but felt certain that those items we had come across by chance were not the only nor necessarily the best examples. The interest shown by networkers indicated this was a fruitful area for investigation.

Accordingly, we contacted networkers worldwide to send us material already produced and in use, the aim being to review this and distribute our findings back through the network. The response was extremely positive, as we received correspondence from over 240 individuals who sent examples of extension literature or put us in touch with others who could be of assistance. The material in the collection ranges from sophisticated publications to home produced texts. It has come from projects making differing financial commitments to communication activities, with distinct views as to what can and should be conveyed through printed media of this sort, and with diverse attitudes as to what forestry extension actually is.

Objectives and methods of review

In screening the items as they arrived, the following definition of `extension material' was first employed: *educative literature that aims to transmit information and understanding between professionals and land users, and between personnel working in different positions within a land use organisation*. This definition serves to ensure that the items under review are essentially instructive and action-oriented rather than reflective and analytical. It thus allows judicious use to be made of the theoretical literature without including reports which make only general recommendations about extension work. Following this definition, the material received from networkers can be divided into four types:

i) Publicity items produced for awareness campaigns such as **posters**, **calendars** and **leaflets**; and a few more unusual examples such as matchboxes with a logo printed on them and invitations to Tree Planting Days sponsored by a forest department.

ii) Over a hundred and seventy more substantial documents for use in the field including **manuals**, **handbooks** and **booklets and pamphlets** of various sizes.

iii) A limited quantity of material associated with **monitoring and evaluation** and the internal flow of information within a land use organisation.

iv) **Background literature** including project descriptions and plans and documentation on extension training.

As cataloguing began, however, it quickly became apparent that this material is so diverse it would be extremely difficult to establish a standard set of criteria by which to examine it all together. Consequently, it was decided that for the purpose of this review we should concentrate

on the second category only - the 173 more substantial field-guides. There are three objectives:

i) In general, to provide information on the items in the collection with regard to their type and source, the considered usefulness of their contents, their relevance to others and the quality of their design and illustrations where these are important.

ii) To compare and contrast the treatment given to social and technical subjects and to the extension methods and skills described; and to identify topics which are not adequately covered by such material.

iii) As far as possible, to analyze the documents from an educational point of view; and to give guidance on producing and using such material on a cost-effective basis.

The review is, then, primarily an examination of the structure and contents of the documents themselves, not of the projects or extension systems of which they are a product. The first step was to record bibliographic details of the items using the ODI Library database. Extra `fields' were then added to the database to categorise the items according to the following criteria:

- type of document
- subject matter
- extension methods and skills
- target readership
- type and quality of illustrations.

The purpose of this was to yield simple numerical data to give shape to the collection as a whole, as well as providing a framework by which to examine individual documents and groups dealing with the same topic in greater depth. In this respect, it is necessary to consider how representative the collection is. We believe it constitutes a fair sample of material used within the specific context of forestry `development projects', and that on this basis certain generalisations can be made as to what types of information are or are not adequately covered. However, it is by no means comprehensive. It does not include material used within formal education systems, in schools or in forester training institutions. Neither does it include the extensive general literature on extension which may be applied to a range of disciplines in addition to forestry.

We are also aware that it has not picked up on `environmental education' material. Environmental education had its origins in the rapid growth of conservation interest in North America and Europe in the 1960s & 70s, where it is associated with the use of a wide range of innovative methods and media to arouse public interest and concern over the environment. Environmental education programmes are now being started in other countries, often as part of projects which are seeking to establish bio-diversity reserves, and often through collaboration between conservation organisations which have world-wide interests and local education/media groups. Some of the principles of the integrated use of media as developed by environmental educationalists have relevance to forestry extension. However, extension education can be said to have a far more focused working context, inasmuch as conservation messages to the rural poor must be linked, first and foremost, to providing for the maintenance and improvement of their material and economic sources of livelihood.

In presenting the findings, we believe that the conventional format of an annotated bibliography would not, by itself, enable us to identify the documents which might be of most use. Therefore, **Part One** consists of an analytical essay which begins, in Section 2, with an overview of the different types of document, their readership, and their institutional and geographical sources. Section 3 considers subject matter coverage, and uses three topics to show the breadth of thinking on the scope and purpose of forestry extension. The following section, on conceptual structure, looks at different ways of presenting information using the examples of agroforestry systems and Rural Appraisal techniques. Section 5 then touches on the complex matter of targeting extension material - a question which assumed increasing importance as the review progressed. Finally, a summary of the findings is given in Section 6.

In each of these sections documents which usefully exemplify different approaches are identified and their contents summarised. It seemed necessary to give more of the flavour of the documents in an essay of this kind (whereby abstracts are set within a textual argument) in order to allow us to tease out the strengths and weaknesses of different approaches to their production, and to understand how thinking on forestry extension has changed over time. It was also necessary because few of them are commercially available, being the product of projects working in a defined locality and printed in limited quantities.

A major difficulty in fulfilling these objectives is that, except in a few cases, it has not been possible to witness the documents being used. Moreover, even though many projects allocate funds to the production of extension material in support of field activities, and such material is duly produced, in only a very few cases is its use or impact reflected upon in project evaluations. There is, therefore, little supporting evidence by which to determine the effectiveness or usefulness of a given document, and to distinguish `good' from `poor' examples. Statements to this effect are thus clearly vulnerable to value judgements. This reflects the fact that it is, in practice, extremely difficult to measure the impact of communication activities of any form - printed, audio-visual or verbal.

The method employed in the review has attempted to limit these constraints by drawing on several key theoretical texts on media planning and cross-cultural communication from the fields of agriculture and health education, in order to provide a foundation for the judgements made. An attempt has also been made to fully utilise the experience gained from the few instances in which the use of forestry extension media has been evaluated and documented in detail.

In **Part Two**, all the items are listed according to the type of document and cross-indexed and annotated using `key words' by subject matter and extension methods (**Index 1**) and geographically by country and region (**Index 2**). Documents referred to in the text can be located in the bibliography by their **Item** number. All those people who kindly contributed to or corresponded with us concerning the review are listed in **Appendix 1**. The collection is now housed in the ODI library and is available for consultation.

2 OVERVIEW OF THE COLLECTION

The 173 documents represent work under way in 35 countries in addition to other items which have regional, worldwide or purely thematic significance. They have been produced by a range

of institutions including government ministries (approximately 33%), local and international NGOs (31%), bilateral and multilateral aid agencies (24.5%) and international organisations such as FAO (9.5%). It is notable, however, how few are the direct product of either national or international research and training institutions. This may reflect structural constraints existing between research and extension in many countries which inhibit the conversion of research findings into extension messages and of extension feedback into research agendas. Moreover, even today, it appears that priority is rarely given amongst academics to the time-consuming and arduous task of writing about complex land use matters for non-professional audiences.

Concerning agro-ecological regions, the great majority of the documents deal with either the drier or upland tropical and sub-tropical parts of the world, as evidenced by the large proportion which come from countries such as Nepal (10%), Kenya (10%) and India (9%). This is partly a reflection of the composition of the RDFN network in the sources of the documents; but it is also fair to say that it is in these areas that innovative approaches to working with rural people on forestry have been pioneered. Only seven of the documents can be seen to deal specifically with the humid tropical (moist-forest) regions: but there is experience to be gleaned from elsewhere which could be made applicable to these areas.

2.1 Target Readership

Over a third of the documents do not explicitly identify their audience, whilst others give only a general indication along such lines as *`this guide has been written for those people interested in...*' This lack of focus is more pronounced in the smaller booklets and pamphlets which are, seemingly, aimed chiefly at land users and field staff; and it will be argued that in some cases this appears to be linked to a somewhat arbitrary selection of the information to be conveyed. It is only from a small proportion of the documents that one gets an unequivocal sense of the setting - the working environment in which they are meant to be read and used. Nevertheless, the intended audience is often implicit because the documents are produced under the auspices of particular projects and are not for wide circulation. It is thus possible to build-up an overall profile of the audiences. This is shown in Figure 1, from which several points emerge:

i) The material is heterogenous, representing diverse communication links between project coordinators, trainers, field-staff, land users and schools.

ii) Communication within land use organisations is thus seen to be as important as communication with land users.

iii) There are significant areas of overlap since 30% of the documents effectively have a dual audience. This may be due to the general nature of the subject matter. However, others are specifically designed to be used as a common point of reference between two groups; the obvious examples are flip-chart booklets and project implementation manuals.

iv) Lastly, it is important to note the extent to which these lines of communication revolve around field-staff as the key players. All in all 55% of the items are for their use. Closer examination reveals that it is precisely this linkage which is most necessary and difficult to support adequately: that of the `front-line' extension agent as a two-way conveyor of information and understanding, often operating across the divide between oral and written

modes of communication and between contrasting cultures of decision-making.

FIGURE 1 TARGET READERSHIP (% OF 173 ITEMS)

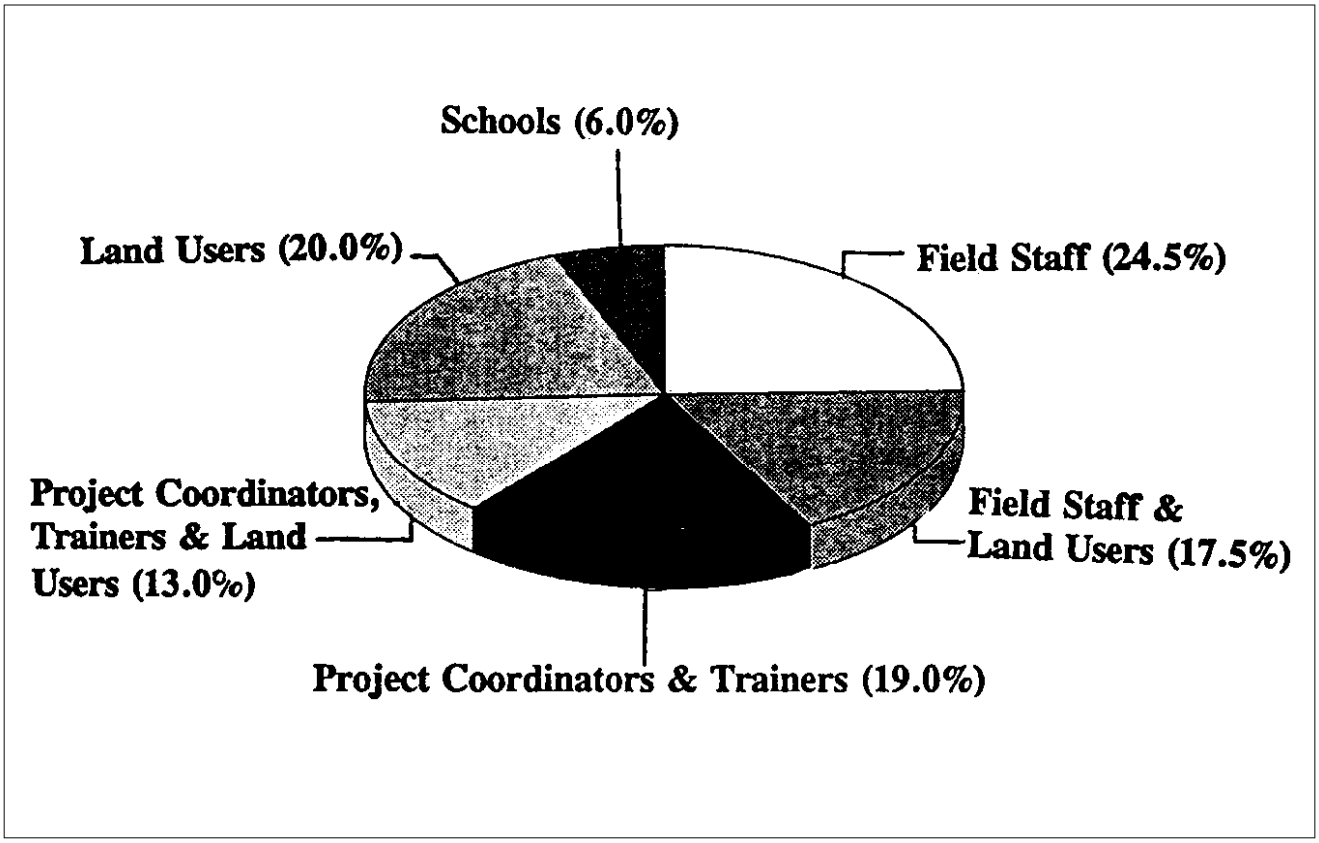
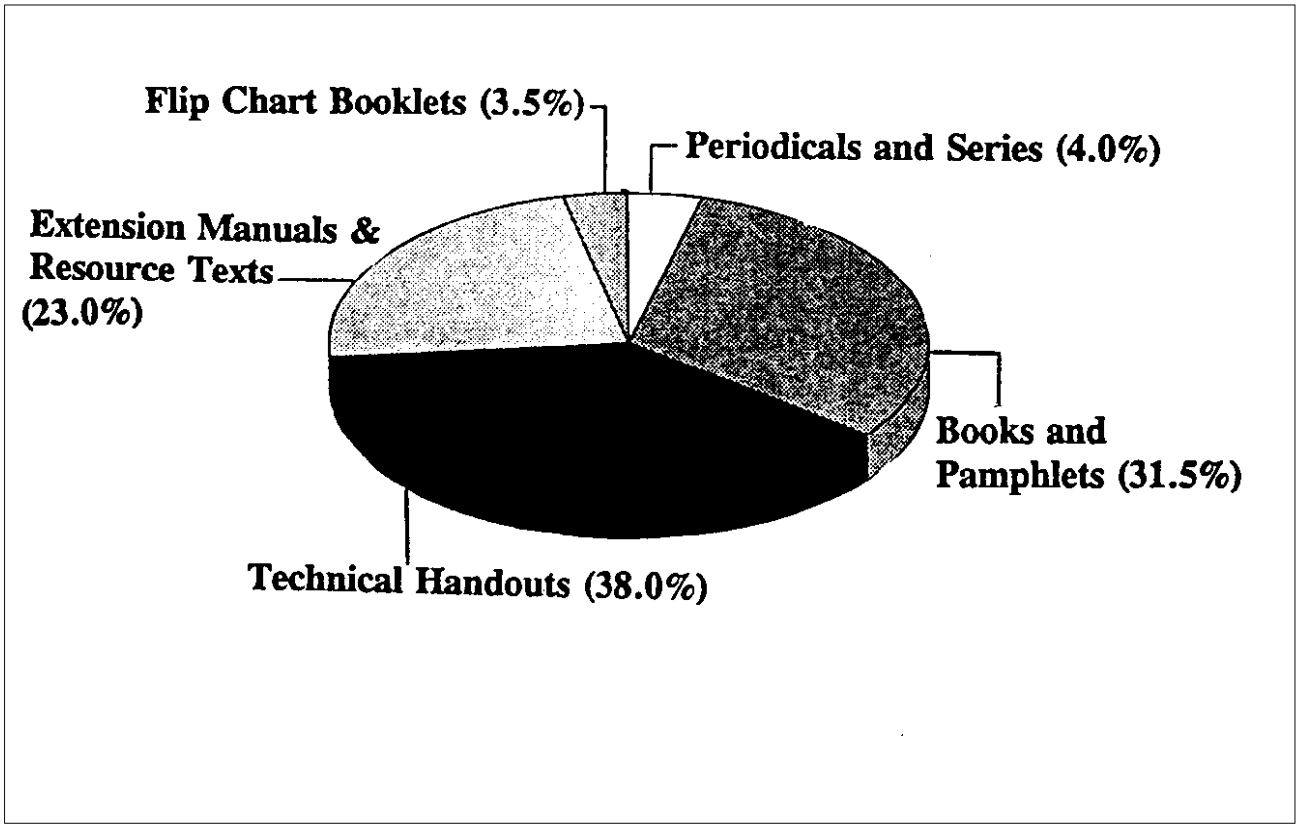


FIGURE 2 TYPES OF DOCUMENT (% OF 173 ITEMS)



2.2 Types of Document

Five different types of document can be clearly distinguished, the proportions of which are shown in Figure 2. A broad distinction is drawn first between manuals and handbooks. **Manuals** give guidance on how to go about specific tasks, the methods and skills of communication involved and organisational strategies. **Handbooks** provide the background knowledge and principles required to carry out that work successfully.

Manuals and Resource Texts

These constitute 23% of the collection and are written chiefly for the benefit of project coordinators, trainers and field-staff, rather than for land users. Because they provide guidance on how to actually carry out extension work, it is within this category we may look to see what new working practices are being applied in forestry. Some, which can be labelled ***resource texts***, cover a wide range of communication, organisational or investigatory strategies which may be applied in different situations[1]. The precursors of this type are three publications produced under FAO's Forestry Paper series which apply conventional methods of agricultural extension to forestry. The document abstracted here was preceded by a conceptual paper on extension organisation (FAO 1986) and is followed by one on extension curricula (**Item 138**) which converts the information given in this document into guidelines for training at the certificate, diploma and degree course levels:

! **Item 137. Forestry Extension Methods**

In *Chapters 1-5*, this document analyses the principles of extension work and how these relate to the needs of foresters and rural people. *Chapters 6 & 7* look at the production and use of audio-visual aids, dividing these into non-projected or literature-based aids, and projected-aids including those which require personnel, such as drama. A short chapter on `working with people' gives ideas on making formal and informal contacts with local leaders and on public

[1] See, for instance, **Items 124, 125, 136, 138, 152 (training); 128 (planning); 132 (monitoring and evaluation); and 143, 144, 153 (rural appraisal).**

speaking. In *Chapters 8 & 9* the full range of *individual*, *group* and *mass* methods of communication are examined separately. It is useful that both the advantages and difficulties of using each method are made very clear. For instance, it is recognised that *field trips and tours* can be effective because they act as an incentive by offering the participants the opportunity of an outing, as well as allowing them to validate information through dialogue with other farmers and by witnessing work in action. On the other hand, in order to obtain maximum benefit, they need to be tightly organised, with a realistic sense of the size of the group and number of visits which will be manageable, possibly involving a reconnaissance visit to the host site beforehand. This adds to the total expense.

In *Chapter 10* the problem of putting different extension methods together to form an effective campaign is considered according to the project planning cycle; and *Chapters 11 & 12* give guidance on monitoring publicity campaigns and on organizing training programmes.

For a detailed description of extension methods this document is useful. However, we should consider also what it does not provide. The authors state in its Introduction that `*...too often in the past extension has been regarded simply as the means of passing down information to farmers, without taking into account the particular social and environmental conditions of the area or the indigenous skills and local knowledge of the farming community*'. Having said this, however, the document is still firmly based on a media-reliant, one-way approach to communication. We need to look elsewhere to find advice on the range of more interactive and participatory methods which have entered extension theory and practice over the last decade, in which the generation of ideas and messages to be tackled through research and extension are not determined solely by project planners.

Another resource text, which is one of few documents which provide advice on forestry planning to a non-professional audience, is published by Volunteers in Technical Assistance:

! **Item 128. Environmentally Sound Small Scale Forestry Projects: guidelines for planning**

This manual is the third in a series of which two others, on environmentally sound agricultural and water projects, have been published previously. It is written for the use of community development workers who have no particular experience in forestry, who yet need to be able to plan small-scale enterprises involving tree growing at the farm level. The emphasis throughout is on planning for the long-term environmentally beneficial effects of using multi-purpose tree species which will also contribute to the livelihoods of rural people. The text is usefully carried forward through a series of questions likely to be asked by the development workers as they operate in the community.

Chapter 2 focuses on the planning process. It is recognised that forestry programmes require careful planning to achieve a proper balance between environmental, social and economic goals, and because long periods are often needed to yield noticeable and desired results from tree growing. A generalised planning model is outlined which includes identifying problems and objectives with the local community; establishing criteria of acceptance with those who will implement the project; and evaluating the various alternatives and trade-offs involved project selection.

In *Chapters 3 - 5* the manual discusses the environmental basis of sound forestry practice, and highlights the importance of understanding institutional (legal, social and economic) constraints. The technical aspects of managing multiple use forestry programmes are then examined in *Chapters 6 - 11* including woodfuel, agroforestry, shelterbelt and windbreak plantings.

Other manuals take a more discrete ***thematic focus***. These apply appropriate communication techniques to the investigation and/or design of particular aspects of forest or farming systems management[2]. One such manual emerged out of several years investigatory work undertaken

[2] See **Items 123, 135, 139 (gender); 131, 156 (tenure); & 134 (cookstoves).**

through FAO's Forests, Trees and People project on the linkages between food supplies from forests, nutrition and poverty alleviation:

- **Item 133. Guidelines for Integrating Nutrition Concerns into Forestry Projects**

  This concise manual begins by recognizing that foresters often have a contribution to make to the well-being of rural people through expanding the selection and distribution of nutritionally beneficial tree species. A methodology is outlined for systematically gathering and interpreting data to assist planners and project coordinators in achieving this. This involves: gathering background information on food security concerns and the present use of trees and forests in the project area; identifying which people should be involved in providing this information and who will benefit from project activities in this direction; defining specific objectives and activities; and questions to consider in monitoring and evaluation. Short examples are given in the text of particular situations in different countries where clear links exist between forest production and food security.

Several highly focused ***implementation documents*** represent another type of manual. These piece together background information and guidelines on the activities to be carried out under the auspices of a particular project or country programme[3]. One example is that produced by the Government of Pakistan/USAID Forestry Planning and Development Project:

- **Item 141. Field Guide for Farm Forestry**

  This manual is for the use of project coordinators and forest officers working in parts of northern Pakistan. It begins by presenting the results of a survey carried out amongst farmers, which assessed their past relationship with the Forest Department. This revealed that they faced difficulties (including a lack of planting stock, plant protection, and competition between trees and crops) which could be remedied by a shift in Department policy to provide material assistance and advice.

[3] See **Items 120 (Bangladesh); 121, 141 (Pakistan); 122 (Zimbabwe); 127, 150, 151 (Nepal); 130 (Mali); 129, 158, 159 (Philippines); 146, 147, 148, 149, 157 (India); 154 & 155 (Peru).**

The manual goes on to consider how this can be done. There are sections on the criteria and methods for selecting communities and contact farmers; and how to introduce farm forestry and the Department's support services through meetings and publicity material. The production of planting stock (including the means of assessing local demand for seedlings and setting-up private nurseries), and the role of local motivators and advisory committees are also discussed.

A final section gives ideas on how to deal with outreach problems. By identifying several misconceptions commonly held by foresters in the region about the level of farmer interest, it encourages them to separate out the issues, to discover which particular parts of the project about which farmers may be unhappy, and the specific reasons for this. After discussing such matters separately in point form, the manual gives a series of `decision-making trees' to assist the forester in solving such problems.

Another example of an implementation manual comes from The Upland Development Programme in the Philippines:

! **Item 158. Implementation Manual for Participatory ISF (Integrated Social Forestry) Projects**

The manual is written for extension coordinators and field staff who work under them. It aims to provide a practical framework for involving rural people in their own development in upland areas of the Philippines. Propounding community organisation strategies as the fundamental basis of eliciting participation, it focuses on three components which are at the core of ISF programmes: agroforestry and soil/water conservation; strengthening land tenure rights; and organisation building. The manual puts forward a planning model derived from previous project experience and refined through consultation between a drafting committee and field practitioners. This consists of three phases: indicative planning; model farm development, which involves testing new agroforestry practices and tenure agreements; and the organisation building phase, which involves consolidating and widening the experience gained in the previous phase through training and ratifying new tenure agreements.

Technical Handbooks

The precedence given to the transfer of technical information is evident in the large number of documents in this category (38% of the total). They are also written primarily for project coordinators, trainers and field-staff. A majority deal with either tree species description and husbandry, nursery practice (both considered in Section 3) or agroforestry (Section 4).

Consideration is given here to four handbooks which cut across such subject boundaries, by integrating different aspects of technical information as applied to particular farming systems or a project location. The first example, produced at a time when foresters were just beginning to write for audiences outside the profession in the early 1980s, was published by The Environmental Liaison Centre in Kenya:

! **Item 54. Tree Planting in Africa South of the Sahara**

This handbook was prepared for the many new forestry development projects which were being started throughout sub-Saharan Africa in the early 1980s by non-governmental organisations, many of which had limited experience in forestry. Its stated purpose is to provide them with a general technical guide. It begins by explaining the various environmental factors which need to be considered when growing trees: climate, soils, local ecology and species adaptability. It then outlines the essential steps in tree planting from seed collection, through nursery production, to the protection of newly planted trees.

Other handbooks of this type, which might be used as models for new publications, include the following:

! **Item 3. Growing Trees: a guide to sowing, planting and caring for trees in northern Ghana** (Oxfam - Arid Lands Information Network)

This handbook aims to encourage and enable local people to experiment in growing trees, by exploring their benefits and uses, ways of growing them and places to plant them. It is concerned with thirty-four species, local and exotic, listed initially in English with botanical names, and in five local dialects. It selects, from this list, species to be used for each particular purpose: soil improvement, fencing, woodfuel, shade, building, fruits, animal food, windbreaks and erosion control - and the site, and management of the site, suitable for each purpose. There follows a short paragraph on each species, describing its various properties and growth requirements.

With the aid of clear diagrams, the handbook then shows how 400 trees would be located either as a windbreak or living fence, planted in a woodlot or alongside a road, or as used in alley-cropping or in a house-compound. It then outlines the activities connected with nursery work and the planting out of trees seedlings from pots, or as striplings and stumps. The remainder of the book comprises a comprehensive summary table of facts, derived from topics considered in the text relating to each species.

! **Item 48. Conservation Farming Techniques** (Sri Lanka Department of Agriculture)

This handbook is offered as a guide to farmer trainers, extensionists and farmers in methods of conserving the natural resources of the soil to secure an essentially low-input but productive and self-sustaining system of farming. It starts with a brief review of traditional shifting cultivation systems and shows how as population increases continuous cultivation on the same plot becomes necessary which can lead to a deterioration of soil fertility and crop yields.

The text then proceeds to explain how methods of mulching and contouring can be used to retain moisture in the soil, increase fertility, and control erosion, leaching and the growth of weeds. There is a section on minimum or zero tillage systems, involving the use of herbicides and special planting techniques. This includes a detailed consideration of the tools and techniques necessary for low tillage systems which can themselves prove expensive. Consideration is next given to fertility regenerating systems by means of live mulches and contour plantings with multipurpose tree species. The handbook ends with

a chapter on pest and disease management under conservation farming, and a final chapter on tree planting for woodfuel and fodder.

! **Item 56. Forestry Handbook for Primary School Teachers in Turkana District**

This handbook was compiled by the Forestry Department and Ministry of Education in Turkana District, Kenya. It is derived from material used in in-service teacher training courses, and aims to be a source of information on the importance of trees in the environment to teacher trainers, primary school teachers and their pupils, as well as the community at large.

It provides details on the patterns of growth and uses of thirty species suited to the semi-arid environment of the area, aiding their identification with drawings and/or photographs. Another section outlines the theory and practice of constructing water harvesting structures such as micro-catchments and bunds in which trees can be planted. Two sections then outline tree husbandry techniques and sources of seedlings in the area. The book ends with a discussion of specific issues and problems related to tree management in the community. This includes an examination of government forestry regulations, and traditional rules and values governing the tenure and use of trees. The handbook was revised after receiving comments on an initial draft.

It is useful to draw a distinction between manuals and handbooks. Nonetheless, some of the most interesting documents are those which attempt to integrate these aspects of operational know-how and factual information. In this respect, the question of how `choice' and `variability' can be built into practical guidelines without making them cumbersome to use is of critical importance: this question is examined further in Section 4.

Booklets and Pamphlets (and the use of illustrations)

The third major type of document are booklets and pamphlets (Figure 2) constituting 31.5% of the collection. Produced for land users, field-staff or schools, they are generally under 15 pages in length, although they are characterised chiefly by their style of presentation. They deal primarily with technical subject matter but in a popular manner. Indeed, whilst the larger documents may require a complex structure to integrate large amounts of different types of information, these smaller items more easily follow a simple sequence of steps, activities or ideas.

Examination of illustrations is especially important in these smaller documents because they often attempt to summarise their message in pictures. Examining the use of pictures and diagrams gives rise to a number of important questions. These include how effectively pictures convey their intended message, and (in many respects more importantly), whose vision of reality they portray. Examination of the cultural specificity of visual literacy to date only seems to underline the difficulty of making reliable working judgements on their use (Fugelsang 1982). Nonetheless, based on the extensive literature which is available on this matter (drawn primarily from the experience of health education) a few simple criteria can be used to increase the effectiveness of

illustrative material[4]:

i) The graphic techniques used should be consistent with the range and type of pictures commonly experienced by the audience. In some cultures highly stylised illustrations (such as cartoons, symbols and emblematic representations of daily life) are readily understandable and acceptable; in others it is necessary to use pictures which present people, animals and other things as they appear in real life (Nzuki & Katarikawe *undated)*.

ii) Illustrations should incorporate details of the local material and social culture, and remain faithful to the socio-economic position of the audience. This can be achieved simply with the participation of local people in refining the illustrations during field testing the documents (Zimmer & Zimmer 1978). Zimmerman & Perkin (1982) suggest that illustrations can be successfully adapted from culture to culture so long as a sensitive attitude is taken in the adaption process.

iii) In simple media, such as posters, the pictorial message should ideally be self explanatory without needing words. In larger booklets and field-guides of the type considered here, what is more important is to achieve a close integration between text and illustrations. There are two aspects to this. First, important details in the pictures should be fully explained and referred to in the text. Second, the layout of the document should be such that there is no confusion about which picture relates to which piece of text.

iv) Clarity of projection is also of great importance. On the basis of studies undertaken in different parts of the world, Fugelsang (ibid) generally advocates a realistic portrayal of the subject matter, combined with the `block out' technique (where extraneous background details are removed from the picture to focus attention on the primary subject). This combination of realistic portrayal and block-out can be achieved most effectively in photographs and multi-tone drawings (which are similar in effect to photographs), both of which he considers to be more widely comprehensible than outline drawings or cartoons[5]

Taking these points into account, the most striking examples in this category of booklets and pamphlets are a series of practical guides to dryland farming published by the organisation World Neighbours:

- **Item 114. Introduction to Soil and Water Conservation Practices**
- **Item 115. Contour Farming with Living Barriers**
- **Item 116. Integrated Farm Management**
- **Item 117. Planting Tree Crops**

[4] These criteria have been used to develop a rough-and-ready ranking scheme by which to assess the quality of hand drawn illustrations used in the documents (see *Guide to the Bibliography* for further details).

[5] Although Bradley (1992) notes that several authors have presented the argument that it is the lack of cultural and ethnic specificity in cartoon characterizations and other stylised forms that contributes to their popularity.

These booklets are for farmers and field-staff and provide practical guidance on different aspects of conservation farming in the dryland/upland areas of Indonesia. They have been published in both Indonesian and English language versions, and are the product of collaboration between a number of non-governmental and farmer organisations working in the field, with inputs from educational and media specialists. They are also among the few items in the collection about which it is stated that they were put together with farmers and field tested before being published.

The work put into the preparation of these documents is evident in the quality of their design. The text and illustrations are closely and clearly knit together; the line drawings are of above average quality in the directness of their projection whilst incorporating details of local life; and the way in which the text unfolds is similar to that of a story, shifting easily between providing specific technical information and touching on the social dimensions of land management. These attributes can be seen in an extract taken from **Item 116** (Figure 3).

The World Neighbours booklets are useful models for this type of publication, both because of their design, and the way in which they introduce agroforestry subject matter (see Section 4). However, as stated within them, the practices described may not be applicable to areas with different climates, soils or farming traditions. Blowfield (pers com) has noted that attempts to adapt them to other places simply by changing the language of the text proved unsatisfactory.

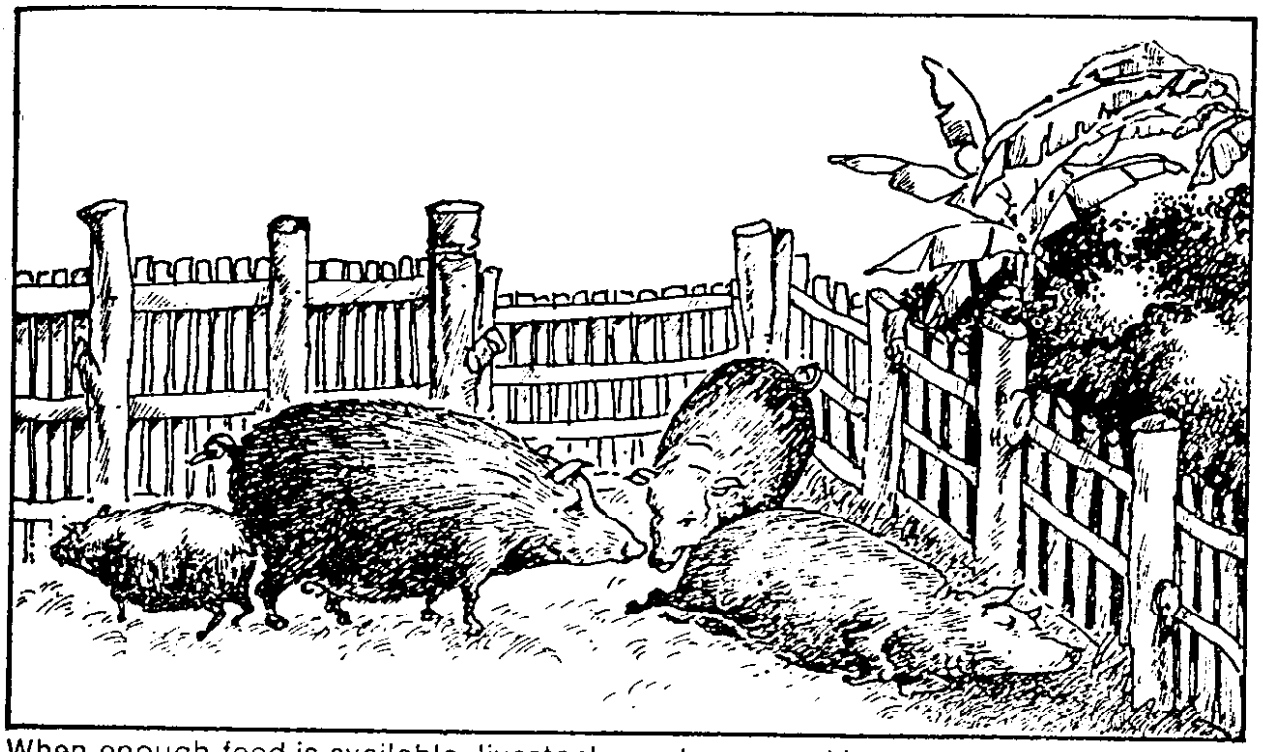
Many booklets and pamphlets attempt, on a general level, to increase the readers' awareness and understanding about the nature and importance of forest resources. For instance:

! **Item 118. Our Forests** (Yayasan Sabah)

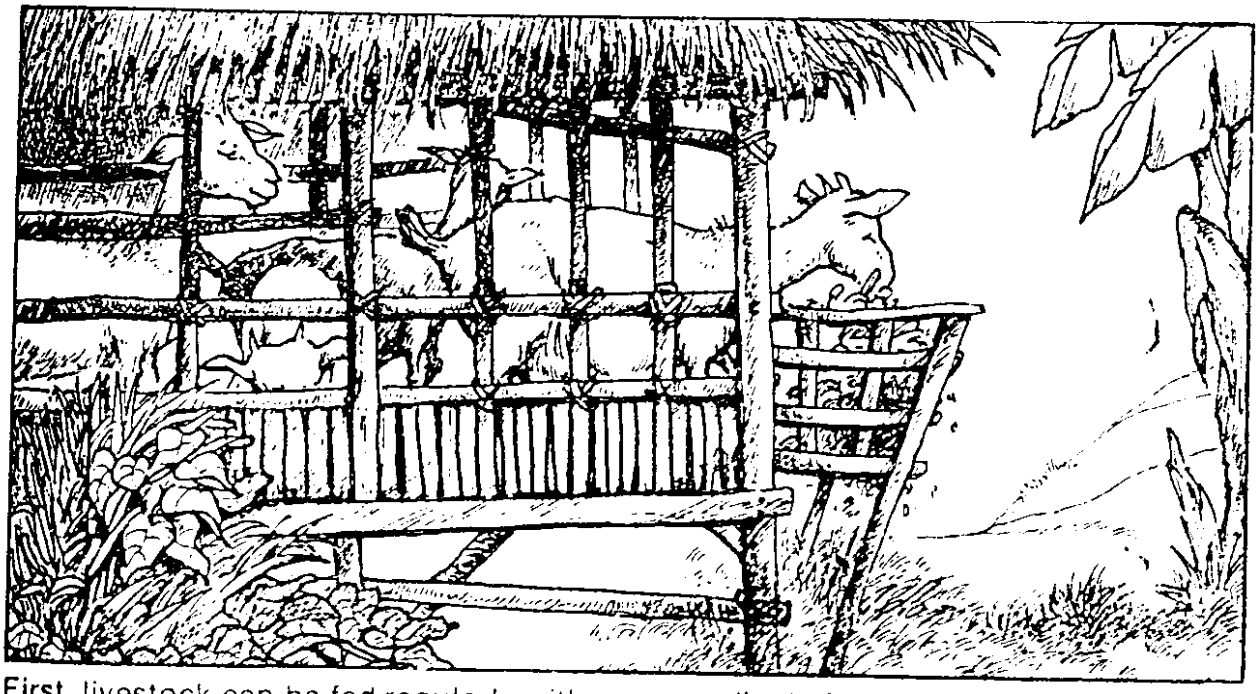
This is an attractively produced booklet, written for young people living and growing up in the state of Sabah in Malaysia, where approximately half the land is under permanent forest cover. The colourful double-page illustrations are accompanied by a short simple text, explaining the interrelationships between plants, animals and human beings in the forest environment. It emphasises the important part forests play in conserving water, soil, and nutrients in the soil; and protecting wildlife. The benefits of timber production in providing revenue for the state for development purposes are outlined, as well as the potential dangers of over-exploitation.

Another common theme covered by these items is that of the techniques of raising seedlings and planting trees. This involves a clearly circumscribed set of activities, about which it is comparatively simple to present information in a comprehensible sequence of text and illustrations. An interesting example has been published by the Mauritanian Department of Environmental Protection:

FIGURE 3 **EXTRACT FROM ITEM 116**
INTEGRATED FARM MANAGEMENT



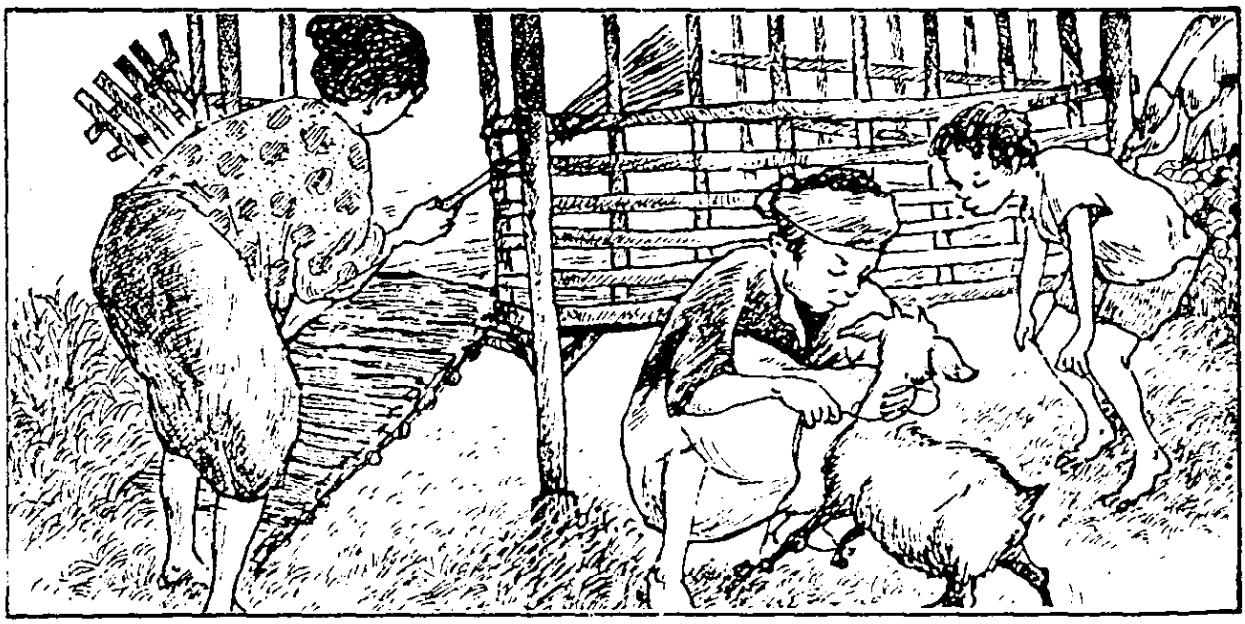
When enough feed is available, livestock can be penned instead of allowing them to roam freely. Raising animals in a pen has many advantages.



First, livestock can be fed regularly with a proper diet (mixture) of leaves and grasses so that they will grow faster.

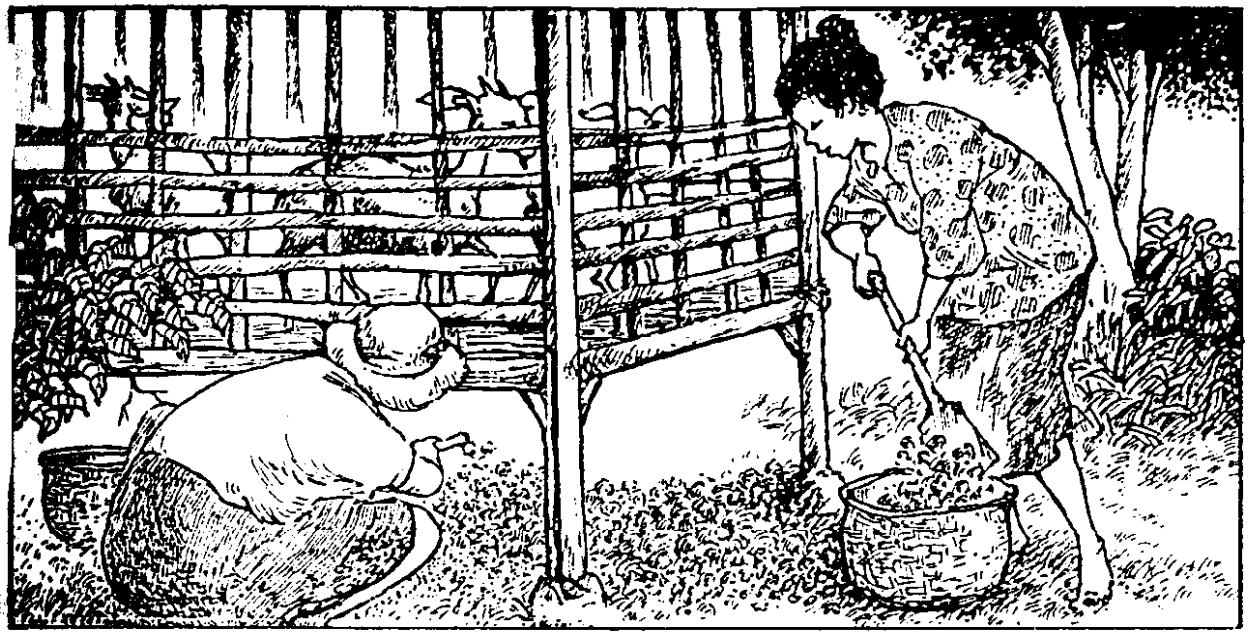
FIGURE 3 EXTRACT FROM ITEM 116
INTEGRATED FARM MANAGEMENT

Time need not be wasted on shepherding animals that are raised in a pen. Also, penned livestock do not waste energy searching for food in the hot sun.



Animals raised in a clean, strong pen are healthier and less likely to suffer from worms and other diseases — animals that do get sick can be cared for better when penned. Also, the spread of diseases is more difficult to manage when livestock are allowed to roam free.

FIGURE 3 EXTRACT FROM ITEM 116
INTEGRATED FARM MANAGEMENT



Caring for livestock in pens allows manure to be collected more easily. Animal manure is an important source of fertilizer for cash crops and the home vegetable garden as well as basic food crops in the field.

The most important advantage of penning animals is keeping them away from field crops. Crops damaged by free-roaming or herded livestock cause many disputes in the village.

! **Item 5. Titarekk et Groun Lemhade**

This handbook is a guide to nursery practice from seed-collection to the planting of seedlings in the field, using two hardy tree species - one exotic (Groun Lemhade - *Prosopis juliflora*) and one indigenous (Titarekk - *Leptadenia pyrotechnica*). However, it does not cover aspects of direct sowing or encouraging natural regeneration. The value of this document lies in the artistry of the illustrations. Consider, for instance, depicting the proportion of different materials to use in a potting mixture (Figure 4), and relating to details of local life as in possible places for storing seed (Figure 5). The drawings are linked throughout in a way which makes it possible to follow the message of the document without necessarily reading the text.

Another example which adopts a concise, step by step approach has been produced by the EMI Forestry Project in Kenya:

! **Item 76. Forest Nursery Handbook: with special reference to the districts of Embu, Meru & Isiolo**

This booklet is for the use of nursery headmen, extensionists, school teachers, voluntary groups and others concerned with forestry in the project area. It provides basic information on the factors which need to be considered in selecting a site for a tree nursery; on layout and construction; and the sequence of nursery operations. At the end this information in summarised in a table on the Nursery Calendar, whilst another table provides Seed Information on species used in the project area.

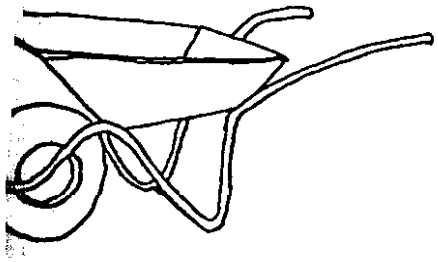
A number of other documents treat the topic of `*how to raise and plant a tree*' very generally, and their value is questionable. Farmers almost always have the basic skills necessary to raise, plant and protect seedlings. They often have more detailed knowledge on a wider range of tree species than foresters themselves. What they may need is specific information to augment this knowledge base, thereby steadily upgrading existing skills, whilst making them available to a widening pool of farmers over time. In this respect, two critical questions arise. First, how does on-going extension differ from basic publicity? Second, how are the information needs of land users assessed in the first place and thereafter fed into the process of generating extension support materials?

FIGURE 4 **EXTRACT FROM ITEM 5**
TITTAREK ET GROUN LEMHADE

A clear depiction of proportions to be used in a potting mix

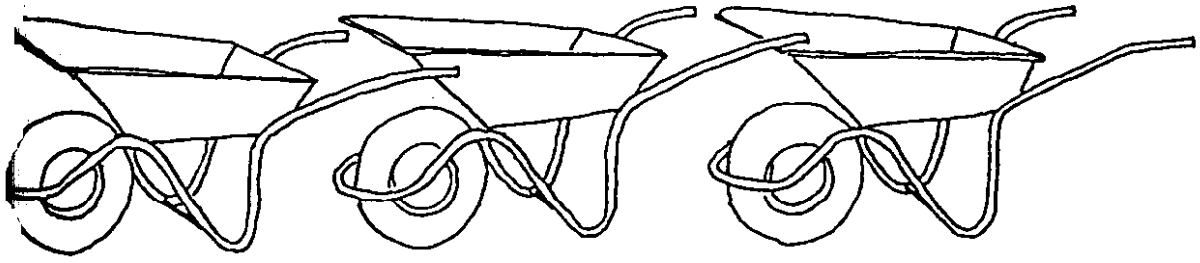
SOL

التـــــربـــــة



BROUETTE DE SOL DU JARDIN

١ بـــرويـــة من تـــربـــة البـــســـتا..

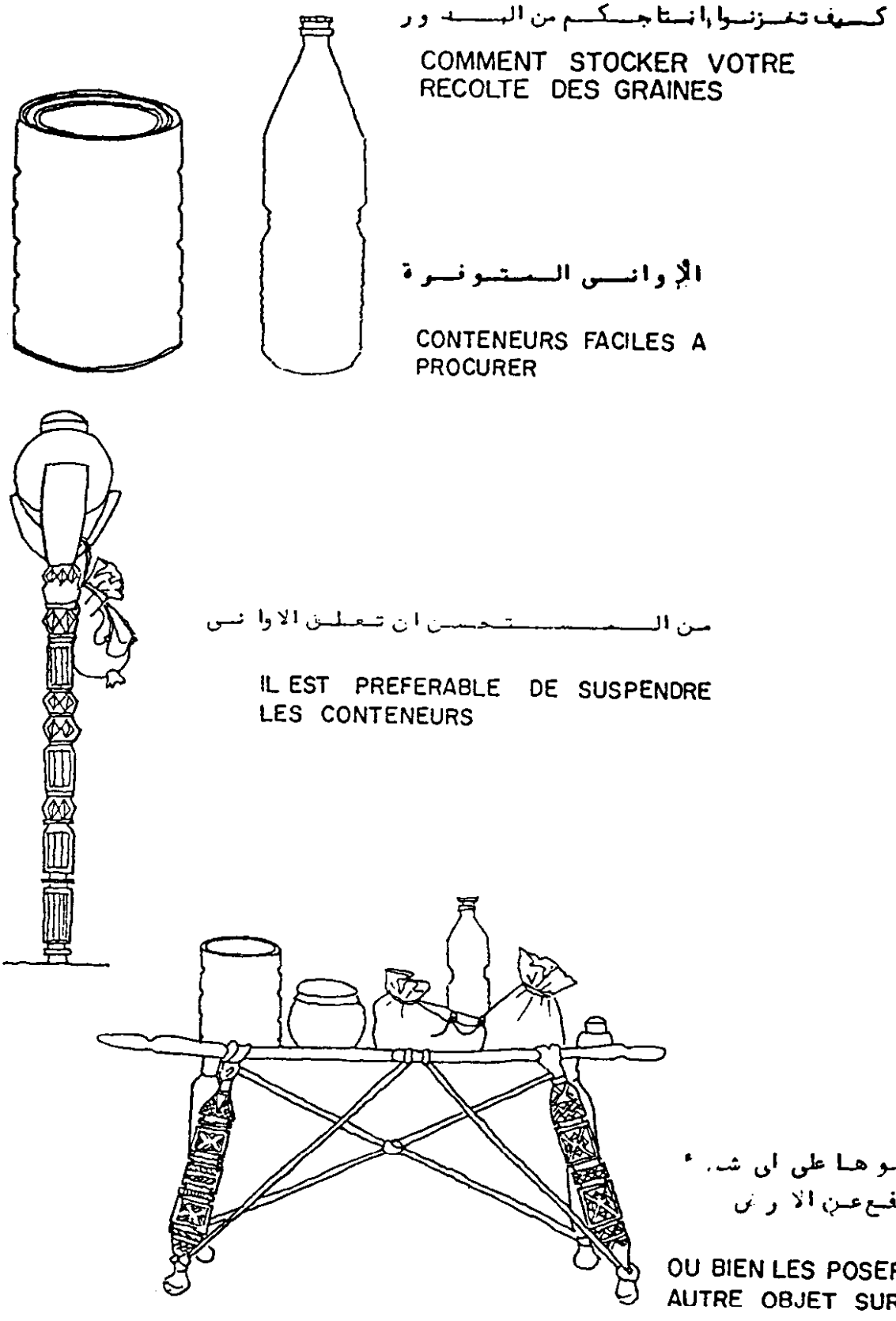


BROUETTES DE SABLE
DE LA DUNE

٣ بـــرويـــة من التـــربـــة الرمـــلـــية

FIGURE 5 **EXTRACT FROM ITEM 5**
TITAREKK ET GROUN LEMHADE

Details of local life are incorporated in a illustration of places suitable for seed storag



Series and Periodicals

The collection contains seven sets of documents which fall into this category. One of the most interesting is a magazine for schools and school children started by the Katsina State Afforestation Project in Northern Nigeria:

! **Item 161. The Greenlight Magazine**

This magazine is published by the `Young Foresters Club' which is one element of the project's Schools Programme, the other two being the provision of teaching inputs by project staff and supporting the establishment of school nurseries and tree planting schemes. The magazine contains a rather idiosyncratic mixture of articles and content, reflecting both the mores of local Hausa culture and a rather traditional conception of the forestry profession. This includes patronage, with editorials by local dignitaries and leaders; poems, letters and stories contributed by teachers and pupils; technical information on tree species, environmental issues and how to go about growing trees; and other information designed to increase the reader's interest in forestry such as details about forestry training opportunities in the country and articles on medicines from forest products. The magazine is also used as a vehicle for publicizing the activities and progress of the project itself. All in all, it combines these different elements to good and lively effect.

This series gives a good indication of the variety of activities which may be included in a schools programme. Schools are enlisted to support forestry extension activities in a great many countries, but only a few items in the collection deal with this area in any depth. Other documents targeted at schools are confined to one-off publications as a resource for teachers in class-work, or aimed at enlightening children on the importance of forest conservation.

3 SUBJECT MATTER COVERAGE

Figure 6 shows the coverage given to different subject matter categories[6]. It will be seen that most attention is given to technical aspects of tree growing on-farm: for instance, 34.5% deal with nursery practice and establishment techniques, and 24% with the use of trees in soil and water conservation and crop production. Another major category is that of tree species descriptions and husbandry (31%). As noted by Arnold (1991), the interventions made by forestry development projects in farming systems were, in the 1980s, heavily biased towards the creation of new resources through planting trees. In contrast, only 7 documents (4%) look in detail at either the management of existing tree resources on common land or management of natural forest.

Of the methods and skills of extension communication, those that are most frequently considered relate to the gathering of information on land users' needs (12% of the documents deal with this); extension training (11.5%); group meetings and group learning strategies (10%); record keeping (7.5%) and the production and use of teaching aids and publicity items (6%).

[6] These categories were initially defined by recording the principle section and sub-section headings used in the documents, and thereafter by reading into the text to verify it dealt with the identified topic in some depth rather than just in passing (see *Guide to the Bibliography*).

The coverage given to critical social and institutional aspects of rural development forestry is surprisingly thin: for instance, only 5% of the documents are concerned with resource tenure, forest legislation and regulations; 6% with community organisation and land use planning; and 4% with gender and labour issues. It needs to be questioned why this is so. It may be simply because no one has given sufficient attention to these aspects; or, alternatively, because publications of this type are an inappropriate vehicle for providing guidance on them.

It is beyond the scope of this paper to examine all the above subjects. Four are selected to illustrate the diversity of thinking on the purpose of forestry extension.

3.1 The Species Focus

To begin, we should recognise that the archetype of forestry field guides is to be found botanically-based guides to tree identification. The species focus continues to underlie many of the technical handbooks and booklets; a second generation of species documents provide a wider range of information especially on the growth requirements and uses of woody plants[7]. The precursors to this type are two well-known and widely used documents published by the American National Academy of Sciences in the early 1980s:

- **Items 26 & 27. Firewood Crops: shrub and tree species for energy production (Vols 1 & 2)**

  Written at a time when concern over wood energy supply and demand dominated thinking on forestry extension, the first volume begins with a short essay on the production, conversion and use of woody biomass as a fuel. The two handbooks combined provide information on a total of 87 species divided into three categories for the humid, arid/semi-arid and highland tropics. Information on each species is presented according to a conventional sequence starting with botanic and common names, biological description and geographical distribution, leading on to fuel and other uses, environmental requirements and establishment techniques, and pests and diseases.

There are many good examples of documents which provide a synthesis of information on individual multi-purpose species. Of those which are available for purchase and which might be used as models for the design of new documents, mention can be made of the following:

- **Item 93. Baobab *Adansonia digitata*** (Kenya Energy and Environment Organisations)

  This in one of a series of well-produced technical pamphlets produced under KENGO's Indigenous Tree Training Series which include others on species as well as on aspects tree management and agroforestry (see also **Items 92 & 94**). It is the product of on-going research on the indigenous trees of Kenya which has sought to combine traditional knowledge found in local communities with scientific knowledge, and ecological with

[7] The collection has, of course, picked up on only a small fraction of the vast literature on species from around the world. The examples mentioned here are used simply to illustrate different ways of presenting species information.

socio-economic information, presenting the results in a comprehensive but simple form for field-staff and land users.

FIGURE 6 **SUBJECT MATTER COVERAGE (NUMBER OF ITEMS DEALING WITH EACH TOPIC AS A % OF 173)**

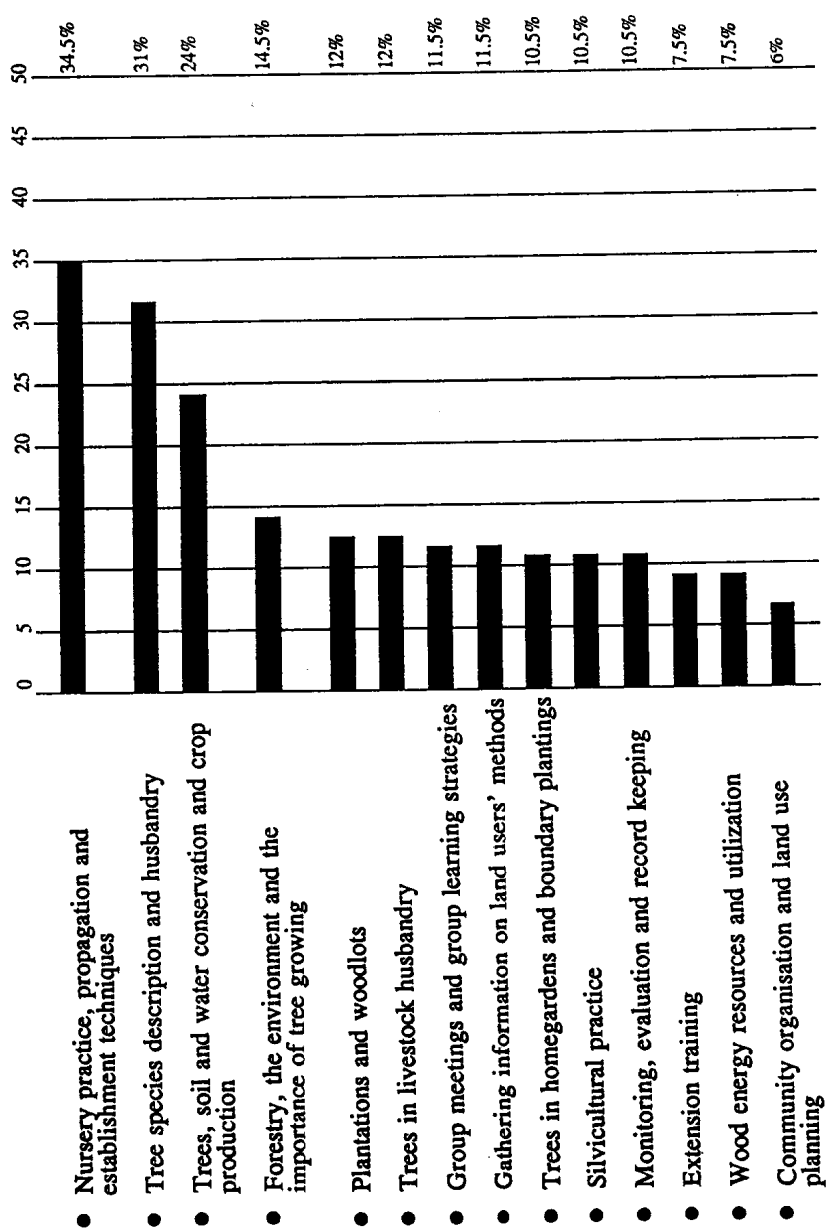
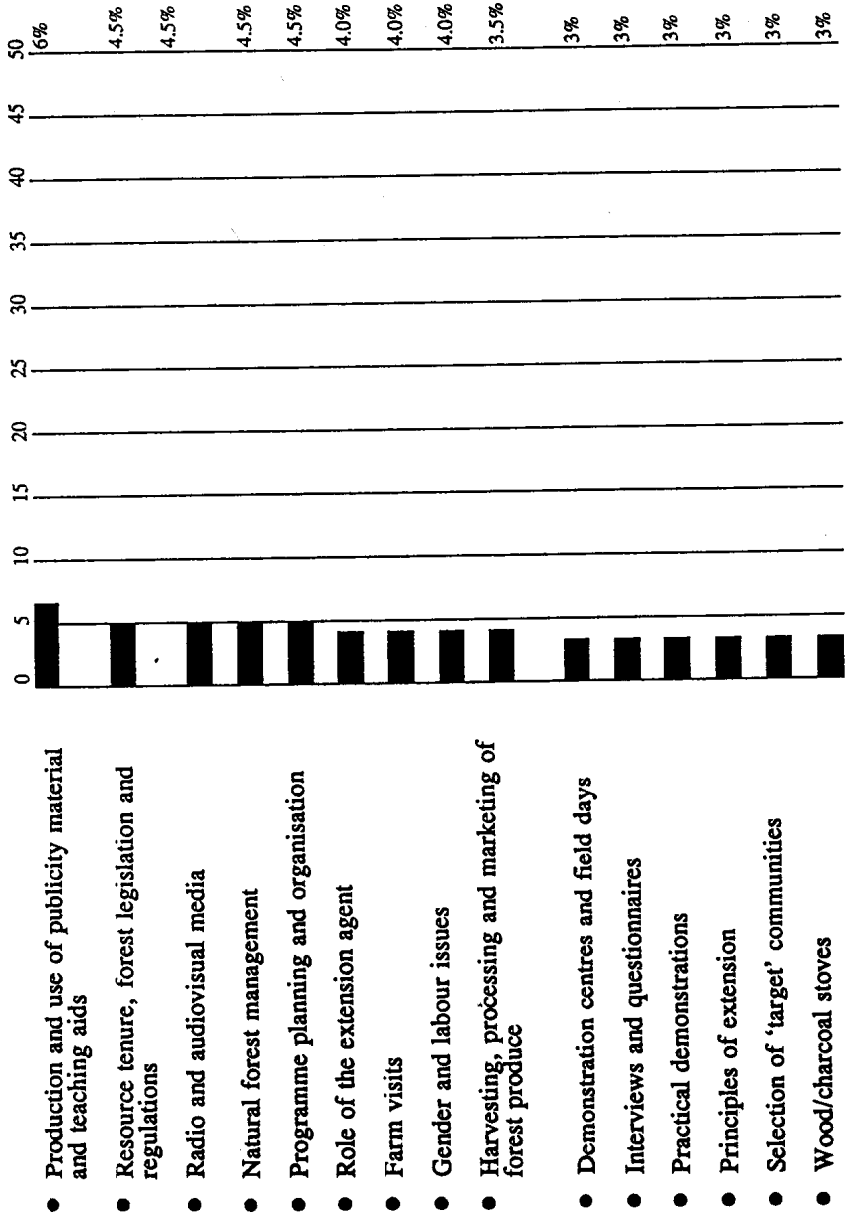


FIGURE 6 **SUBJECT MATTER COVERAGE (NUMBER OF ITEMS DEALING WITH EACH TOPIC AS A % OF 173)**



! **Item 59. *Balanites aegyptiaca*: a manual for extension workers** (University of Wales)

This document also results from a research programme on the domestication of indigenous multi-purpose trees of the African savannas. It begins by outlining the uses of the species, its distribution and position in the landscape. Consideration is then given to the advice extension workers may give land users on its husbandry, including propagation techniques, a useful section on the selection of seed trees, and management in various positions on farmland and in woodland.

Presenting information on tree species also lends itself to codification in tabular or checklist form and there are several documents which show different ways of achieving this. These include:

! **Item 36. Trees of Somalia: a field guide for development workers** (Oxfam)

In the introduction the author recognises that this document is by necessity incomplete, and possibly even incorrect in places, inasmuch as exact information on Somali trees is scarce. Nevertheless, it draws together existing knowledge and provides a useful framework to which further information can be added over time by personnel and agencies working in the country. In *Chapter 1* a number of tables are presented which list forty-one selected species according to their botanic, Somali and English names; their drought tolerance; and their various uses. More detailed information on each species is then given, divided into three parts: *tree details*; *tree description*, which includes simple drawings of leaf, fruits and flowers and tree form; and *tree growing* which lists appropriate methods of propagation, establishment and aftercare.

Mention should also be made of the following handbook published by the Zambia Forestry Department. It presents information in a less structured fashion, but is of interest because of the way in which is presents a wealth of information on non-timber forest products:

! **Item 65. More About Trees: interesting facts and uses of some common Zambian trees including a selection of honey recipes**

This handbook was written as a sequel to an earlier book which took a more conventional approach to the field identification and description of species. This document provides facts and uses of over one hundred and forty common trees of the savanna woodlands of Zambia. It includes basic information on their habits of growth and cultivation, but concentrates more on their multiple uses. The text covers trees which yield edible fruits or seeds; preserves, oils and beverages; tans, dyes and gums; medicines, soaps and varnishes; trees for animal food and beekeeping; for amenity planting in towns or villages; and for the production of musical instruments, string, cloth and toothbrushes.

The book is written in a totally different manner to many other species documents because it represents an embodiment of the extensive personal experience of the author. It aims to provide information and succeeds in that, as well as stimulating interest in the many different types of tree, providing an enriching historical record of their value and of their potential. The detailed text is accompanied by a number of black and white photographs which are interesting despite imperfect reproduction.

3.2 Nursery Practice

In many projects seedling production and distribution has been regarded as the primary function of extension. This is reflected in the large number of items which deal with nursery practice (59 documents). There are standard procedures to nursery practice which can be applied with minor adjustments from one region to another and which are not subject to frequent revision; it is, therefore, cost-effective to present information of this kind in technical handbooks and booklets which have a long shelf-life. However, adapting a nursery system to meet farmer needs is not simply a technical matter. It also gives rise to changes in management and organisation about which advice needs to be given.

Several documents provide a good overview of nursery practice[8]. One which aims to provide general guidelines which may be adapted to suit local conditions has been published by the International Labour Office:

! **Item 47. Tree Nurseries - an illustrated technical guide and training manual**

This handbook contains all the information needed to set up and run tree nurseries, relying on manual work rather than on mechanised techniques, and focusing on the production of containerised seedlings. It is aimed at project coordinators and trainers, and as stated in its *Introduction* it should be used as a starting point upon which the experience of nursery workers' and managers' can be built.

[8] See, in particular, **Items 25 (for Pakistan); 6 (Lesotho), 12 (South Africa); 13, 24, 76 (Kenya); 28 (India); 32 (Nepal); 43 (Peru); and 47, 49 (regional/worldwide).**

Section 1 (Setting up a tree nursery) deals with siting a nursery and the environmental conditions necessary for seedling growth; nursery location, access, ownership and size; facilities, layout and tools and equipment required. *Section 2* (Seed) includes guidelines on seed procurement, seed quality and quantity including examples of seed certificates, extraction and storage.

Section 3 (Growing seedlings in containers) is divided into eight operational stages beginning with obtaining potting soil and culminating in preparing seedlings for planting out. The next three sections outline alternative methods of raising planting stock including bare-rooted cuttings, stumps and grafting fruit trees. Finally, *Section 7* details nursery planning according to a production calendar, organising a work schedule and record keeping. Four appendices cover compost making, the application of inoculants to nursery soil, alternative container varieties, and useful notes on organising a training course utilizing the information and illustrations contained in the text.

The handbook is well structured. Within each section detailed text is presented on one page, relating to clear illustrations with simple annotations on the facing page. This makes it easy to use the handbook as a visual aid in training as well as a reference guide.

This document is available for purchase and excerpts may be reproduced from it, without authorization, for use in the production of training material. One handbook which has clearly used the ILO document as a model, and which thus shows how the general advice given may be augmented with locally applicable information, has been produced by the Malakand Social Forestry Project/NWFP Forestry Department of Pakistan (**Item 25**).

In recent years much has been learnt about strategies to provide farmers with a cheap and reliable supply of planting stock. Many projects have found it advantageous to support decentralised nurseries at the village, group or household level whilst maintaining a number of centralised nurseries as supply, demonstration or training centres. Documents which provide technical guidance on small-scale nurseries include that produced by IUCN and the Aga Khan Rural Support Programme in Pakistan:

! **Item 1. Village Forest Nurseries: a manual for extension workers in northern areas of Pakistan**

This manual is written for village development workers who have not necessarily had previous forestry experience. It is part of a comprehensive training package (see also **Item 121**) for local people who are selected by their community to become Village Forestry Specialists. They, in turn, are expected to become trainers and facilitators themselves. To help them in the field, a shortened pictorial version of the manual is also produced, with text in Urdu, together with flip-charts with large illustrations.

The manual begins by answering three basic questions: what is a nursery; how to start a nursery (site and design); and how to run a nursery (management and record keeping). Following this, general nursery techniques are outlined. Five annexes detail other useful information.

Mention can be made of **Item 40. Manuel de Viveros y Plantaciones Escolares**, published by

the Programa de Educación Forestal in Peru, which is an especially attractively produced handbook on school nurseries. A publication by the Kenya Woodfuel Development Programme is also of interest because it describes how locally appropriate techniques can be developed through a process of on-farm trials (see also Section 5.1):

! **Item 24. On-farm Tree Nurseries**

This is a `second generation' handbook resulting from several years project experience. The manual begins by looking at conventional methods of seedling production, contrasting these with traditional methods. It is noted that there is considerable expertise amongst farmers throughout Kenya in raising trees, but that this has been largely ignored by foresters in the past. The handbook then gives details about an `integrated' system of nursery production, which draws on industrial and local techniques, as developed in the project area through on-farm trials. The techniques described are applicable to the higher rainfall areas of Eastern Africa, but the principle of building upon existing practices, and of transferring the means of producing seedlings to land users themselves, have wider relevance.

Supporting small-scale nurseries is not an easy management option. Staff time on seedling production is not reduced and more elaborate managerial skills are often required to provide the necessary technical advice, monitoring, and to ensure the well-timed supply of external inputs where these are needed. The benefits of decentralisation, on the other hand, can include more effective distribution of seedlings, wider distribution of the economic benefits to be gained from raising trees, as well as the promotion of more intensive contact between field staff and farmers. None of the documents fully explores these managerial and organisational aspects of adapting a nursery system: there is scope for new publications in this area.

3.3 Communication Skills and the Role of Extension Field Staff

In many ways the most important people in extension are those who link the farming community to the external agencies involved and act as catalysts in getting work underway (Westoby 1990). It is only though such people that foresters can hope to gain an understanding of the problems farmers face and to put forward possible solutions. Implicit in the plans of many programmes is that these people are able to carry out a diverse and difficult set of duties. These result from the great variety of production strategies associated with the multiple uses of trees on individual farms, or on common or public lands. It is precisely because extensionists often have to envisage and give advice about tree growing on these different categories of land that an exceptional level of on-the-job support may be needed. Government cadre in addition very often have to contend with uncertainty and conflict between forest `protection' and new `advisory' duties.

The treatment given to communication methods and skills, appraisal and planning strategies must, therefore, be based on a realistic understanding of the changing/expanding role of field-staff. A broad definition of their role in one project is provided in a training manual produced by the Govt.of Peru/FAO/Holanda Community Reforestation Project (see also Section 5.2):

! **Item 155. Curso de Extensión para Forestales en la Sierra Peruana**

This manual is a comprehensive guide for an in-service training course on the concepts and practices of extension communication as applied to forestry in the area. *Part 1* outlines the intended sequence and duration of the course for the instructor, and summarises the objectives and activities of each session. *Part 2* then provides details on the content of each session. The course is divided into three parts, and begins by exploring group interaction and group learning strategies. It then establishes a conceptual framework for extension in the area including an analysis of local socio-economic characteristics. The third part deals with the actual methods involved such as the use of audio-visual media, flip-charts and practical demonstrations.

In the section on the `role of the extensionist' a wide range of responsibilities are identified. Appropriate action should be determined by studying the needs and forest resources of the community, with the direct participation of the people themselves. Matters which are stressed include the involvement of all community members (men, women and children), and consultation with any other programmes operating in the area.

Another training manual which implicitly takes as its starting point the changing role of field staff, has been produced by CARE on the basis of in-service training workshops undertaken in Kenya. This is the most comprehensive attempt yet made to apply general principles of communication to the discipline of agroforestry/forestry:

! Item 124. Agroforestry Extension Training Sourcebook (Vol.1); and Agroforestry Sourcebook Support Materials (Vol.2)

Volume One of this publication consists of four large extension training sourcebooks, which contain in total ten modules, each concentrating on a particular aspect of an agroforestry training programme. In turn, each module consists of a varying number of `lessons', differing in length and complexity according to the topic. Interspersed throughout the text are black and white illustrations and charts, drawings and diagrams. The text itself is varied, lively and includes questions to be answered, activities and discussions to be undertaken. The training modules are accompanied by a collection of sourcebook support materials (*Volume Two*). This consists of reproductions from papers, books, pamphlets etc pertaining to specific lesson topics.
Module One (Beginning Agroforestry Extension Training) concentrates on clarifying the participants' own understanding of the training they are about to undertake. It ends with a series of questions, relating to each of the following modules in turn, which the trainee should be able to answer adequately as the course progresses. In *Module Two (Introduction to Agroforestry)*, the importance of agroforestry as a land use system is considered: what it means, why it is necessary, and how it is likely to aid development. Attention is then given to the way in which different trees are used in agroforestry schemes.

Module Three (Project Approach to AF Extension) defines the project approach to agroforestry development. This aims to be participatory, recognizing that the farmer will be slow to change from traditional methods and that this may require the extension trainees to limit and change their initial expectations.

Module Four (AF Extension Communication) contains four lessons which explore the

processes of interpersonal communication. Lesson One is concerned with the possible difficulty of introducing groups of people to the idea of agroforestry, and how these might be overcome. Lesson Two explores the conditions, techniques and attitudes conducive to adult learning. Lesson Three takes the form of a two-day communication training workshop. Through a series of activities, trainees come to identify factors which inhibit communication, and practise techniques to encourage it. Lesson Four is concerned with indirect means of communication to supplement or take the place of personal contacts (eg posters, books, films, newsletters, drama etc.).

The material in *Module Five (Land Use Diagnosis for AF)* is divided into six parts covering 21 lessons, on the purposes, approach and methods of agroforestry diagnosis which requires an informed profile of the project area. *Module 6 (Agroforestry Design)* stresses the need to incorporate traditional techniques into agroforestry designs. *Module 7* deals with planning, monitoring and evaluating extension activities. *Modules 8 to 10* cover the practical aspects of tree production including seed handling; nursery management; and tree planting, protection and management.

Due to the size and expense of this publication, it is obviously not suitable for distribution to a large number of field-staff working for a particular project. Nevertheless, it is valuable as a source of ideas for people designing and organizing training programmes. Observations made by RDFN network staff on its use in different places suggest that trainers most often select parts of it to include in their own training schemes, rather than following the entire programme.

On a more critical note, these two manuals present a rather bewildering array of communication methods and skills. This demands a high level of expertise amongst trainers and support staff, which many programmes simply cannot afford. Sufficient consideration is also not given to the process of gradually fostering new skills amongst a team of field staff over time, as their confidence and capabilities grow. An alternative, incremental approach is advocated in two manuals produced by the Nepal-Australia Forestry Project:

! **Item 150. Forestry Work in Villages: a guide for field workers**

The aim of the manual is to give field staff ideas about how to establish effective working relations with villagers. *Part 1* sets the challenge: even though people realise the importance of forests, convincing them to actively collaborate with the Forest Department is not an easy task. It asks the questions - how do we go about changing people's attitudes, and is it even possible to do so? This is followed by the suggestion that success may depend on changing `our' attitudes first. *Parts 2-5* discuss the practicalities of working in a village, developing rapport with villagers and assisting in the drawing up of management plans for areas of forest.

! **Item 151. Towards Effective Participation: a guide for working with women in forestry**

The Preface to this document states that it should not be seen as providing a formula for involving women in forestry. Rather, it should be used only as a reference guide for planning and organising work with them in the field. It begins with a brief introduction to the position of women as users of forests and traces the history of their participation in

development in Nepal. Two assumptions are challenged: that rural women are conservative, overburdened with household chores and therefore disinterested in development work; and that the non-availability of female field staff is a major constraint to increasing their involvement in forestry. On this basis the manual puts forward a strategy of `focused integration', which emphasizes the training of both male and female field staff to work with women farmers; and a support network at field level consisting of local women as change agents to act as a link between communities and forestry workers. Guidelines are then given for appropriate methods of data collection, planning and monitoring through group interaction techniques in workshops and meetings.

These manuals are careful not to conceptualise extension as a alien undertaking; rather, they attempt to show how new skills can be integrated with the existing work of field staff to their own advantage. It is evidently because they are the outcome of several years of accumulated experience that they have this simple yet effective approach. Moreover, it is recognised in them that extension is not simply a matter of developing good communication skills. Of equal importance is the way in which field staff have to facilitate the link between the formal workings and requirements of government on the one hand, with more flexible decision-making processes which go on at community level.

3.3 Resource Tenure and Forest Legislation

It is widely recognised that the failure to understand existing patterns of resource tenure, or to anticipate changes in tenure that may result from project interventions, has been a common cause of failure in rural development forestry projects. It is essential, therefore, that field staff understand and are able to operate effectively within the complex configurations of formal and unrecognised rights which relate to the use of trees on and off-farm in many places. It is then surprising how few manuals attempt to give advice on these matters.

On the other hand, we should recognise that it is difficult to prepare explicit guidelines on tenure relations, whilst still imparting the need for a degree of flexibility in the way in which they are handled in practice. This is because they vary so much from place to place and may evolve rapidly over time. For these reasons, durable publications of the type considered here are not necessarily the best vehicle for them: other more readily up-dateable and less expensive media and in-service training are in many cases more appropriate. As noted by Gronow (pers com), in one project area in Nepal, it was found that the most useful `text' on tenure that field staff could use was simply a transcription of the forest laws and ordinances of the country.

Nonetheless, two manuals in the collection are instructive about the way in which this subject can be covered. They both show that `case-studies' are a useful means of presenting information about tenure issues, and that rural appraisal techniques are perhaps the most appropriate method of investigating them in the field. The first, written primarily for researchers, trainers and project coordinators, is that published by FAO's Forest, Trees and People Project:

! Item 131. Community Forestry: rapid appraisal of tree and land tenure

This manual aims to provide a framework for understanding and methods for investigating tenure issues in forestry. It begins by identifying three broad `niches' in which forestry

activities take place: the agricultural holding (for individual or household plantings);

the commons (for communal forestry); and public or reserved land under government control. Trees, it is noted, are often an integral part of the definition of tenure rights and relations.

It is suggested that rural appraisal techniques are the most suitable means of gathering information on tenure including, particularly, a combination of key informant and household interviews and mapping exercises. When investigating tenure in each of these niches, particular attention should be given to understanding the relationship between government laws and land holding and usufruct rights as they exist on the ground. Furthermore, it is recognised that important gender differences are nested within tenure relations which also need to be fully explored.

The manual does not offer solutions to commonly occurring tenure problems, but tentatively suggests ways of turning these complications into opportunities for the clarification of rights. In this respect, it is suggested that strategies should be adopted whereby agroforestry practices are phased in to accommodate problems as they arise, as well as gradual changes in tenure relations. The validity of the opposite approach, of altering land tenure through legislation as a means of effecting tree planting, is questioned. Included in the text are numerous short case-studies which highlight the points made, and examples of maps which illustrate the usefulness of mapping as a means of portraying information on tenure.

The second manual is published by the Society for Participatory Research in Asia:

! **Item 156. Land Ownership and Alienation in India: a manual for activists**

This manual aims to provide information about land ownership, to assist community workers in the process of organising rural people themselves into effective pressure groups to maintain secure land rights. The introductory chapter on patterns of land ownership in India indicates the extent of landlessness, in a society where three quarters of the population live in the rural areas and where agriculture is the prime economic activity. The manual highlights circumstances that still cause alienation through legislation for private ownership, through indebtedness, and even as unanticipated consequences of development projects. This is despite government measures which have attempted to deal with the problem through development policies which have a strong poverty alleviation focus.

Six case-studies portray the efforts of different peasant groups in different parts of the country to regain land lost to them, or in the process of being lost, often without adequate compensation. The need to maintain and update land records by each owner is emphasised. However, as this is beyond the skills of some people, it is an aspect of the problem where activists can be legitimately involved. The manual puts forward a model of participatory research to gather concrete and authentic information on land ownership, and an example questionnaire is included to record the necessary information. The appendices list land legislation from different states.

4 CONCEPTUAL STRUCTURE TO AID UNDERSTANDING

Many documents in the collection adopt what might be labelled an academic structure, characterised by the tendency to order information according to subject matter categories derived from professional disciplinary norms. As these do not necessarily conform to the sequence of activities and decisions which need to be taken by field-staff in supporting farmers' activities, or to farmers' own conceptualisation of land use problems, it may not be the most effective way of conveying information and recommendations to a non-professional audience. Alternative `conceptual approaches' are illustrated by other documents, in which material is variously organised according to:

- the agricultural calendar/almanac
- site-type or land-use zonation
- case-study or example
- question and answer
- the `toolkit' approach.

Two interrelated aspects are examined here. The first is how to break-down the concept of a land use/farming system into meaningful units (this issue is particularly important in giving technical advice and information on agroforestry practices and systems). The second is how to incorporate elements of technical choice, variability and operational flexibility into sets of instructions and guidelines for action (this issue is most clearly exemplified with regard to Rural Appraisal methods).

4.1 Agroforestry Systems

Research scientists are inclined to study and present their recommendations on agroforestry practices in a `systemic' fashion. This viewpoint is essential in order to understand the diversity, complexity and interdependency between different components of farm systems, as well as to measure the impact of introducing new elements into them. In order to implement such understanding, however, extensionists need to be able to extract operational `chunks' from agroforestry systems and work with them. Whilst much basic agroforestry research has concentrated on devising whole new systems, such as alley-cropping, extensionists and farmers more often need to know how to adapt existing systems over time on an incremental basis (Shepherd 1991).

In terms of preparing field-guides, the difficulty lies in providing well-defined entry points to involve the reader, and pathways to guide him/her through the information given, so that s/he can reach sensible conclusions about what to try.

To illustrate this point, we can refer to one of the series of practical guides to dryland farming produced by World Neighbours for use in Indonesia (see Section 2.4). This booklet focuses on several **points of intervention** which might lead to a beneficial intensification and/or diversification of the production system:

! **Item 116. Integrated Farm Management**

The emphasis of this booklet, which was written for land users and extension staff, is on various potential modifications to farming practice enabling families to better survive the losses and failures associated with farming in difficult environments. These include: i) the application of green manure to increase soil fertility and make it easier to work; ii) modifications to cropping patterns to improve erosion control; iii) the potential for stall feeding livestock; and iv) cultural methods of maintaining and increasing the productivity of trees grown on farmland for fruits and fuel. Having introduced these points of intervention, the booklet also shows how they complement each other (for instance, the production of fodder from contour bunds for stall feeding animals) thus promoting integration of different farm components.

Several documents in the collection adopt a **tree species focus** in presenting information on agroforestry. In some cases this is entirely appropriate as, for instance, in the following publication by the Nitrogen Fixing Tree Association:

! **Item 35. Establishment Guide: NFTA Cooperative Planting Programme**

This handbook provides guidelines on how to establish and manage plantings of nitrogen fixing trees in research trials and farmer demonstration purposes. It also covers questions of species selection, seed orchards and nursery/planting instructions. It is specifically intended for organisations participating in the NFTA's Cooperative Planting Programme, but the principles have wider applicability. Of special use to extension workers is the section on demonstration plantings in which 15 different uses for nitrogen fixing trees are described under five general site-types: farm boundaries; trees in crop fields; trees in livestock systems; trees around the house; and pure stands.

However, approaching the topic through the medium of the use of particular species can pose restrictions on the scope and applicability of the information. This problem is most evident in a number of documents which, in their order of presentation, link the discrete practice of inter-cropping with leguminous species such as *Leucaena leucocephala*, to more complex farm management issues relating to soil conservation and water control, crop production, labour allocation and farm income.

One of the most ambitious items in the collection adopts a **toolkit** approach: this is a comprehensive guide to agroforestry technology for use in training and as a reference text for social forestry field staff in the Philippines:

! **Item 129. Agroforestry Technology Information Kit**

This technical manual is the product of a workshop which brought together academics, field practitioners, communicators, graphic designers and representatives from farmer organisations, with the purpose of collating scientific expertise and native know-how and skills on agroforestry practices.

The document is composed of 62 technical notes, compiled in a loose-leaf folder, under six (colour coded) section headings: soil and water conservation technologies; annual

cropping systems; seeds and plant production; trees and their management; livestock production; homegarden technologies. Each of the technical notes first provides background information and the scientific principles relating to the topic, followed by a section on practical methods. The handbook is liberally illustrated with clearly annotated technical drawings.

A handbook produced by the Ethiopian Community Forests and Soil Conservation Department works through a system of **land use zonation**:

! Item 9. Community Forestry in Ethiopia: guidelines for development agents

This handbook assists field staff in identifying and learning about which community forestry measures are most likely to interest farmers in the area in which they work. It is constructed around a traditional Ethiopian system of land classification which accords with a broad agro-ecological zonation of the country. *Step 1.* is, therefore, to identify the characteristics of the relevant zone: a matrix of these zones is presented at the beginning which is later used as a simple means of cross checking information between different sections of the handbook.

Utilizing line drawings and text, *Step 2.* describes the range of possible tree-growing techniques on cultivated, grazing and forest land, and *Step 3.* gives details about selected tree and shrub species. *Step 4.* then provides a framework whereby the reader can integrate the information gleaned from previous sections in order to make an informed choice about the options to be discussed with farmers. Finally, *Step 5.* describes how to make a work plan through summarizing the decisions made at various points along the way: i) description and problems of the area; ii) community forestry measures that may be recommended for the area; and iii) a record of activities carried out.

One of the most attractively produced and well-thought out manuals on agroforestry has been produced under ICRAF's Science and Practice of Agroforestry Series: this looks at agroforestry in terms of the different **site-types** or **niches** in the agricultural landscape in which trees can be grown:

! Item 142. Agroforestry in Dryland Africa

Written for field workers in the semi-arid and sub-humid parts of Africa, this manual begins with guidelines on the process of participatory planning and evaluation of agroforestry enterprises. This includes different types of mapping and interview exercises. The second section describes a wide range of agroforestry practices appropriate for different sites. For each site a description of the practice is given first, followed by design features, appropriate species to use, establishment and management, and anticipated benefits. It concludes with examples from the field and selected references. A final section brings together useful information for the field worker, including checklists of multi-purpose species, guidelines for interviewers and sample questionnaires, and definitions of agroforestry terminology.

Finally, one or two documents attempt to achieve a more complex and prescriptive mixture of instructions, such as this one produced by the Direction Regional des Eaux et Fôrets, Sikasso,

Mali:

! **Item 130. Manuel de Vulgarisation sur les Techniques de Reboisement Villageois**

This manual is for the use of extension workers. The tree growing models discussed include woodlots and windbreak plantings, which have had a chequered success in Sahelian Africa. It is made up of three interlocking elements which correspond to: i) the operations to be carried out on ii) the different types of plantation according to iii) the agricultural calendar. Combined, they constitute a plan of work.
Each section is further sub-divided into three parts. The first summarises the basic principles necessary to understand why each particular operation needs to be carried out. The second part, work in the villages, deals on the one hand with the process of developing villager's understanding, and on the other with the organisation of practical work. Part three discusses supplementary tasks to be carried out by field-staff including monitoring and reporting. Each section, or that is to say each task, is `codified' according to the age of the plantation (0,1,2,3 years or more), the number of the month in question, and the type of operation (from planting-out to harvesting). The manual thus provides field-staff with a comprehensive reference for all the work which may be necessary on each visit to a village over time.

There are clearly both strengths and weaknesses in this approach. The manual reflects an intricately thought out system of assisting farmers in establishing and managing different types of tree planting. The potential merit of this is that, with field staff guidance, the system may become self-sustaining. However, it is questionable whether such a time-bound approach to organising field work is at all realistic, especially in semi-arid areas such as Mali where the growing season is so variable and unpredictable.

4.2 Rural Appraisal Methods

Several documents provide guidance to project coordinators and field staff on how to work with land users in the collection and interpretation of information on: i) problems they face in their production systems; and ii) what types of forestry are likely to be of interest to them. Broadly speaking, this encompasses the survey and analytical techniques associated with (Participatory and Rapid) Rural Appraisal and other related methodologies such as ICRAF's Diagnosis and Design. The documents abstracted here have been chosen to illustrate a range of approaches in dealing with this topic, and it is recognised that they are but a small sample of the growing literature on rural appraisal. Furthermore, it is not necessarily appropriate to consider them solely within the context of forestry, since rural appraisal implicitly attempts to provide an integrated picture of production systems[9].

Many of the individual techniques commonly used in rural appraisal work are straightforward. They are designed to provide information and understanding in a manner that the farmer can grasp as easily as the researcher and the extensionist (for example, the `walking interview' as

[9] Some of the most useful guidance is to be found not in manuals such as these, but in other types of publication from organisations promoting rural appraisal such as the series **RRA Notes** produced by the International Institute for Environment and Development (London).

opposed to an interview based on a detailed, hidden questionnaire). The essence of the approach lies in its flexibility. It includes a set of techniques from which one can pick and choose, the sum of which is designed to provide an understanding of the range of solutions and opportunities which may be applicable to a particular farming situation, thus providing choice to the farmer.

The skill and difficulty lies in actually piecing together these techniques and the data they yield. The powers of communication, insight and deduction needed to do this successfully are considerable. This indicates the problems inherent in describing the process adequately in manuals such as these.

Two examples attempt to provide abstract guidelines which may be applied generally or in any situation - the first concentrates more on techniques, the second more on methodology:

! **Item 132. The Community's Toolbox: the idea, methods and tools for participatory assessment, monitoring and evaluation in Community Forestry** (FAO Forest, Trees and People Project)

In the first two sections, this manual introduces the concept and process of participatory assessment, monitoring and evaluation of forestry projects. It also describes the methods involved in planning, organizing and conducting an activity or group of activities at each stage in this process.

Details on 23 different (written, oral or visual) `tools' for information collection and exchange are then given. These range from those that rely purely on oral, person-to-person interaction (such as group meetings and theatre), to adaptations of more conventional forms of monitoring (such as nursery record books); and from low-cost visual techniques (such as historical mapping, ranking and sorting) to more sophisticated media-reliant approaches (such as video and tape recordings). The most appropriate purposes and major benefits of using each tool, as well their limitations, are identified. The manual discusses how to choose which combination of tools to use in different circumstances; criteria to consider in this respect include the nature of the questions to be addressed, existing communication skills of the participants, and the sample size.

! **Item 143. D & D User's Manual** (International Centre for Research in Agroforestry)

This manual was produced in response to the demand for a simple up-dated introduction to ICRAF's methodology for agroforestry diagnosis and design. The first section deals with the basic principles of D&D. These are essentially flexible, so that they can be applied at different levels and adapted to different farming situations. This is followed by a detailed stage-by-stage plan of the procedure of collecting and processing information necessary at all levels but particularly when operating national research programmes. A case-study of the application of the methodology at Kathama in Kenya then provides a well-documented example of the process actually in action. This is followed by an illustrated sequence of a hypothetical programme of research at the national agroforestry level. The appendix contains a selection of diagnostic survey instruments and design resources, including worksheets, checklists for field investigation and recording devices.

Both these manuals are instructive, but there are inherent dangers in adopting the hypothetical approach. Focusing on individual survey techniques runs the risk of omitting a coherent framework by which to make sense of the findings. On the other hand, by concentrating on the overall methodology one can easily loose sight of the actual methods of investigation. Attempting to tie these elements together can result in an excessively convoluted and indigestible set of ideas.

Another document circumvents such difficulties by relating methodology and technique more specifically to a detailed case-study. This makes clearer what types of information can result from different techniques, and how understanding of a farming system may be assembled:

! **Item 126. Guidelines for Training in Rapid Appraisal for Agroforestry Research and Extension**

The guidelines were produced during an actual training course in rural appraisal methodology carried out in the Shurugwi communal area of Zimbabwe in 1988, through collaboration between the Commonwealth Science Council and the Zimbabwe Forestry Commission. The aim is, therefore, that of training research and extension personnel in identifying suitable agroforestry interventions in smallholder land use systems. The course progresses through five steps.

Step I is an orientation to the process including discussion on the nature and aims of the course and the experience and expectations of the trainers and trainees. *Step II* involves a review of background information on historical and current socio-economic problems and environmental and political issues of the area.

Step III deals with the actual methods of survey and analysis used to build up a composite picture of the production systems and natural resource use in the area. This consists of 17 different activities including soil, vegetation and land use mapping exercises interspersed with group meetings and interviews with farmers and key informants at various stages to cross check the information. *Steps IV & V* present the potential agroforestry interventions considered during the appraisal process for both on-farm and communal land areas, as finalised in a workshop and in meetings with the community.

Throughout the manual, special attention is given to illustrating different ways in which the data can be collated into tables, charts and diagrams using the actual findings from the course.

It is suggested in the introduction to this manual that although collaborative involvement between farmers and researchers in rural appraisal exercises is desirable, participation is harder and more time-consuming to achieve than is often supposed. In practice, an assessment must be made of what level of participation is realistically possible consistent with the need to reach a successful conclusion to the work.

In a few documents in the collection the term `participation' is used very frequently - even to excess - without it being clear who is supposed to be participating with whom and in what. More often than not, the phrase used is *`farmer participation'*. If sensitively used, rural appraisal techniques reflect the extent to which researchers are willing to enter upon the mind-set of the farmers. One document which explores this interesting aspect was developed out of a workshop

held at the Bangladesh Agricultural Research Institute:

! **Item 123. Households, Agroecosystems and Rural Resources Management**

The specific object of this manual is to enable the readers, as researchers, to question assumptions about gender and farm systems which they unknowingly bring to bear on their field work. The manual is different because it does not deal with research methods and techniques primarily as a means of understanding or affecting other people or situations - but as a way of broadening the understanding of the researcher's own attitudes and ways of thinking. This in turn will enable the researcher to make clearer and more valid estimations about the problems and possibilities of the farms and farming communities in which they work. A particular focus is given to understanding the increasingly important part played by women in this sphere.

This process of developing self knowledge is carried forward through the construction and analysis of a series of farming systems diagrams (of which 18 examples are given in the document). Examples are given first of ways in which researchers express their own conceptualisations of a farm system. Thereafter, these conceptualisations are progressively refined by way of drawing diagrams with farmers themselves on a series of three household visits.

At each stage these diagrams are analyzed, and criticised in the text to make evident to the reader the hidden complexity and inter-dependency of farms and farming communities within the rural environment. Checklists of questions are given for this assessment.

Finally, it is evident that there is a continuing need for the digestion of experience gained from rural appraisal activities in order to come up with locally applicable guidelines for field staff. These are the people who are expected to adopt a consultative approach in their work with land users, but who often do not have the backing of an experienced team of itinerant `participatory' researchers. Projects in different parts of the world are increasingly attempting to fill this gap: one example is a manual produced by the Upland Development Programme in the Philippines:

! **Item 159. Handbook on Community Profiling For People-Oriented Forestry Projects**

This handbook is intended primarily for use in the various people-oriented forestry programmes in operation under the Upland Development Programme of the Philippines. It acts as a companion to the Implementation Manual for Participatory ISF Project mentioned in Section 2 (**Item 158**). It starts by defining the basic principles of `community profiling' as a *`rapid rural appraisal type activity for obtaining and organizing the kind of data needed for site selection, project selection, and planning social forestry projects'* This, and subsequent sections, start usefully by posing one or two questions which need to be considered at each stage.

It then outlines the practical tasks involved in preparation for profiling: this secondary data gathering stage includes the procurement of maps and records. The primary data gathering stage follows in the field in collaboration with land users and local officials. It involves a

different set of activities including mapping, interviewing and recording information. The last stage is taken up with the reporting process - analyzing the data, drawing conclusions and drafting the report. A final section offers an example of a sample report: firstly with alterations and corrections written on the draft; and then as the finalised version. Useful hints are also given throughout to the ways in which the `profilers' can make a favourable impression on the farmers and officials with whom they are in contact. This manual well illustrates the types of data which could or should be gathered during the profiling process.

5 PRODUCTION AND USE

Westoby (1990) suggests that the scope, content and method of forestry training should be arrived at *`...by working backwards. The starting point is to identify the most urgent tasks to be carried out and how the people who are to carry them out can be reached. Then step by step it will be possible to work out the levels of training required and appropriate content'*. This statement implies that identifying the audience is only part of the complex process of targeting extension material. What is equally important is to ascertain the information needs of the audience as relating to the work under way; and how new inputs will fit into existing forums and channels of communication. Defining the message itself is several steps down the line.

This section briefly explores the problem of targeting, referring to three cases in which the development and use of forestry extension material has been evaluated in some detail.

5.1 Market Research and Field Testing

One need only bear in mind the considerable resources put into testing different combinations of messages and media by commercial advertising and broadcasting agencies to realise the importance of understanding the `market'. Mody (1991; 1992) suggests that there are some basic similarities between the type of investigatory, formative research put into this and the `farmer-first' approach to land use which fosters a bottom-up generation of ideas and problems to be tackled through research and extension. Moreover, there is no reason why development workers cannot undertake their own `rough-and-ready' audience research. This process involves several steps, the only crucial resource being time.

i) Gaining an understanding of the means by which land users inform each other through horizontal flows of communication. What are the existing forums in which they share their ideas, skills and experience? Who is involved, and what types of information are passed between them in these situations? How might new inputs be linked to these?

ii) Through this understanding, profiles of the audience can be developed including an assessment of their information needs, interests and skills. It may be necessary to divide the audience into groups requiring a different approach, for instance those who may need to be contacted at differing times of the day, or at varied meeting points.

iii) Thereafter, the choice of media will depend on the nature of the instructional task, the abilities of the audience and the financial and organisational capacity of the extension service.

iv) Finally, pre-testing draft messages and media may lead to a refinement or revision of the original plan.

Care must be taken in drawing parallels between land use extension amongst smallholder farming communities and consumer advertising in a commercialised society. For, as Mody (ibid) also recognises, the production values, the resources at hand and the impacts of the two are essentially quite different: *`Advertising agencies receive big budgets to do audience research and hire the most creative production talent to persuade clearly defined audience segments with purchasing power to make a relatively small adjustment in their consumption habits...'.* The use of media in agricultural extension, on the other hand, is usually characterised by low budgets, little or no audience research and the near impossible goal of persuading low-income farmers to make major changes in their farming practices within a short space of time.

Nevertheless, the principle need for an evolutionary strategy towards media creation is the same, and some documents in the collection clearly result from this type of learning process. Of note here are publications by the Kenya Woodfuel Development Programme. Although not strictly a manual, the document abstracted here is of value because it is one of the most thorough accounts of forestry extension education yet undertaken:

! Item 145. Where You Can't See the Wood for the Trees: extension methods in rural woodfuel development.

The book begins by tracing the origins of KWDP, which began work in two districts of western Kenya in the mid-1980s. The project was based on detailed research which showed that rural energy consumption at the time relied heavily on the use of trees in natural bushland. Since this resource was diminishing it was projected that procurement of woodfuel would soon become a serious problem for many households (Bradley 1991).

Programmes in other parts of East Africa which were based on the same perceived need to tackle woodfuel shortages often met with a poor response from farmers. This one achieved more success, stimulating interest in tree planting in the area both by women and men, although probably not for the production of woodfuel alone (Kerkof 1990). Farmers in fact had a wider range of reasons for becoming involved. The initial success of KWDP may also be attributed to its operation in a unique combination of circumstances (a rapidly growing population, commercialisation of the economy, and changes in economic relations within and between households brought about by land adjudication). These were already prompting farmers to grow more trees on-farm, presenting a favourable situation for extension.

The document describes the development of the extension system. Underlying it was the plan to decentralise seedling production by establishing 600 small-scale nurseries. As the logistics of this precluded the use of expensive nursery materials, an alternative was sought in switching from the distribution of seedlings to the distribution of seed, and by supporting on-farm research to develop cheap and easy methods of nursery propagation based on local practices (see **Item 24.**). Thus at the outset, extension work concentrated on establishing working relations with the 26 contact farmers who joined in this research and a small team of locally recruited extension workers who supported them and liaised

with project staff.

Thereafter, contact was made with a widening pool of farmers through group methods, holding meetings and practical demonstrations with existing and new farmers' groups at different localities. As the confidence and skills of the field staff grew new communication methods were also tried, including the formation of a drama group in one district. This created a play which was to become the centre-piece of the programme. Entitled `*So, Firewood Can Wreck a Home?'*, the drama sought to explore the tensions which could arise in a household due to the lack of woodfuel and to suggest possible solutions through tree growing. The play was eventually transferred onto film. Although this required a high initial investment, it had lower running costs than the drama, and was less demanding on the time and energy of the staff involved.

Various handbooks and booklets were produced to support these activities and useful hints are given on their use. One of these was a transcription of the story-line of the drama which was distributed with the performance of the play. Some time was then allowed to elapse before further visits were made in order to give the families the opportunity to consider and discuss the issues raised by it. If further meetings led to increased interest in growing trees, packages of seed were distributed free-of-charge, together with small booklets (see **Item 95.**) describing the construction of the small-scale nurseries and care of young seedlings.

Several interesting features emerge from the extension system evolved by KWDP. First, it reverses the pattern of many campaigns tried elsewhere which begin with a period of mass publicity to a wide audience after which more discrete channels of communication are opened up with groups and individuals. KWDP began by fostering intensive contact with a few farmers in order to generate a technology and a message (the small-scale nursery techniques) which were then progressively more widely disseminated. Second, strategic decisions were evidently made about when, where and how investment in educational support materials could effectively boost the work under way. Third, it involved the orchestrated use of several different channels of communication and types of media.

5.2 Integrating the Use of Media with Field Activities

What is important is that the production of media of any type should be conceived of as being part of the on-going process of extension and not simply its point of departure. It should also be carefully planned to fit with practical activities.

An example of a manual which provides guidance to field staff on this latter aspect has been produced by the Govt. of Peru/FAO/Holanda Community Reforestation Project. At the outset, it should be noted that this project has utilised a wide range of media including technical handbooks (see **Items 42, 43**), manuals (**Items 154, 155**), booklets and pamphlets, publicity items, plus radio, video and film-strips. These represent a high level of investment which can rarely be matched by other projects. It follows an integrated approach to communications which has featured in many FAO sponsored projects in recent years. Balit (1988) defines this concept and practice of `Development Support Communication' as being part science, part art and part craft: `*It is part science because it draws heavily on social science theory and methodology; it*

is part art because in incorporates artistic talents and skills such as graphics, photography, radio, video ...and the like; it is part craft because it employs a wide variety of aids and equipment such as cameras, projectors, tape setters ...for preparing, projecting and disseminating images'. This manual is, in part, a guide to the use of the different media produced by the project:

! **Item 154. Proyecto Comunal de Reforestación**

Written for project coordinators and field staff, the manual provides an operational framework for integrating the educational and advisory aspects of extension work with resource surveys and land use planning, in collaboration with villagers. A familiar planning cycle is propounded, of community meetings, a resource survey, review meetings, more detailed investigation, and finally, the formulation of an overall plan for forestry activities within the community.

At the beginning of the manual an extended table is presented in which these steps are summarised. The objectives of each meeting or field activity are first identified together with their expected duration; a summary is also given of what information may need to be provided by the field staff and the media. Notes on what to investigate at each stage, and the anticipated decisions or results are also given. On the basis of this table, the manual provides technical information on the different tree planting options and, in subsequent sections, a series of forms for recording data gathered during the resource survey and for giving detail to the plans made with the villagers for future action.

In an evaluation of the media used in this project (Bodegom 1990), it was found that the best medium to use was a film strip with a cassette. This was because the project seeks to work with women, men and children, and the best time of day to reach them all is in the evening, after dark. Moreover, because printed literature such as booklets and flip-charts were only used in specially organised events such as training seminars, to a small audience, they were less cost-effective. As noted elsewhere by Moris (1991), even if seminars and workshops are imaginatively organised and the instructional material used in them is attractively produced, in the absence of very careful planning (and without an acute sense of what can be realistically achieved given limited resources) they will not fulfil their required function.

The problems which may occur in this respect were amply illustrated by the experience of the multi-media *Forests are Wealth* campaign carried out in Tanzania in 1980-81. At this time, forest departments of many countries had gone so far as to institute `arbour days' on the official calendar. On such days concerted tree-planting and forest-protection messages are sent out on the airwaves, and the whole populace is meant to come together in the common cause. *Forests are Wealth* was a far more ambitious undertaking. It aimed to achieve nationwide coverage over an extended period, employing a range of mass communication methods including radio broadcasts, newspaper articles, posters, stickers etc. In designing the campaign the Division of Forestry and Beekeeping worked in collaboration with a national institute of adult education: the educationalist brought the experience gained from an earlier mass adult literacy programme to bear on the design and use of the media.

Special priority was given to eight regions in the semi-arid heartland of the country, where

problems associated with deforestation were considered to be most acute. In these regions the mass media approach was combined with more intensive forms of communication. The crux of the campaign lay in coordinating the use of a series of 24 radio broadcasts which expounded upon the information contained in a specially produced handbook on forestry:

! **Item 50. Misitu Ni Mali**

The handbook is divided into nine sections. It begins with a discussion on the dangers of deforestation, the material and economic benefits of forest resources, and the principles of forest conservation and development. This is followed by sections which provide practical information on the raising of seedlings; planting, caring and harvesting of trees; protection of forests; and utilisation of forest products for wood and fuel. In a final section the ordinances and by-laws governing forest use in the country are outlined.

It was intended that study groups should be formed at village level, to meet twice weekly to listen to the radio broadcast and then discuss the relevant sections in the handbook. These discussions were supposed to help participants internalise the information, and a 30 page guide on the concept and organisation of study-groups was also produced to assist the group leaders (Mutangira 1984). The idea was that deliberations and resolutions made by the study-groups would result in practical action in tree planting, although differing opinions have been expressed on the lasting physical impact and achievements.

The considerable difficulties in executing a top-down campaign of this magnitude soon became clear. Delays in starting meant that it coincided with the crop planting season when few land users had the time to attend the meetings. More critically, the officials in the regions and districts who were to be responsible for implementing the campaign had little involvement in the planning stages. There was also some confusion over priorities: whether it was more important to concentrate on the study groups, or to plant the tree seedlings which were being distributed to villages simultaneously. The inevitable consequence of all this was that few productive study-groups were formed at village level and the expenditure put into producing educational support materials was not fully justified.

5.3 The Voice of the Audience

Another way of looking at the problem of targeting extension material is to consider whether the people who do the work itself (land users or field staff), participate in the production of the publications.

In a review of the problems of information handling in Kenyan agriculture, Kinara-Long (1981) recognises that there is a considerable pool of un-tapped expertise amongst district officials, extension workers and NGO employees who work in the field. At present, one of the few outlets for their experience is by way of the regular channels of reporting through the bureaucratic structure; but at the centre, the mechanisms and resources are rarely in place to sift through this

information or to convert the most useful of it into extension publications for re-distribution. Kinara-Long suggests there is great scope for identifying the most capable staff and providing them with the time and resources to document their knowledge in a more directly useful fashion.

A related question is the extent to which the `voice' of the land user finds its way into the material in the collection. Most of the documents are written as if by an invisible hand. There are, however, one or two from which one gets a much more exciting sense of involvement and action. One of these is an apiculture handbook produced by the Agricultural Information Service of the Botswanan Ministry of Agriculture:

! **Item 2. Bee Keeping Handbook**

This handbook arose from the author's work directly with local people in Western Botswana. With a group of local schoolboys he started practising bee keeping, combining traditional techniques of handling bees with the simple design of the Tanzanian Top Bar Hive to partly domesticate wild colonies. Apparently they had great success.

The manual details the process of
partial domestication, beginning with the equipment needed and an explanation of the social and reproductive structure of a bee colony. It then goes on to describe the sequence of steps involved from preparing the hive to eventual honey harvesting. Where the handbook really comes alive is in the imaginative use of a total of 89 black and white photographs. These depict the schoolboys undertaking the various activities. Great care been taken to photograph each step in a comprehensive sequence, and to describe fully what is taking place in each scene. It is the immediacy of these photographs, as reproductions of a reality, that confirm active participation in the production of the document.

We can refer back here to Balit's (1988) definition of development support communication as being `*part science, part art and part craft*'. The problem with this definition lies with the `art': if it is to be meaningful then it not only has to incorporate artistic talents and skills. It also has to tap the inspirational and imaginative content of communication that these skills and talents are meant to carry. The aesthetic elements of this are really secondary: what is essential is to be able to actualise the content, and through the very style and vigour of representation to bring it to life for the audience. What makes the production of extension literature so difficult is that there are no hard-and-fast rules for achieving this quality.

6 SUMMARY OF FINDINGS

A definite evolution of ideas can be traced through the documents. What began as an attempt to `sell' forestry in the early 1980s (or at the beginning of a particular project), develops into an extended learning process. This happens as it becomes apparent that the problems which need to be tackled through forestry extension are in practice more complex than simply urging farmers to plant more trees. In this situation the business of developing appropriate educational support materials itself becomes more problematic.

Forestry is, in this respect, re-living the earlier experience of family planning extension. Drives to promote family planning and birth control were, in many countries, made first through popular

messages conveyed by mass media. These captured the attention of a proportion of the population already in the economic position which predetermines changes in life-style and family structure. However, they often failed to influence the majority of urban poor and rural families. More intensive and interactive forms of dialogue are needed to understand, let alone alter, the social and economic circumstances which lie behind their attitudes and position in society.

It has been suggested here that rural development forestry throws up a unique set of circumstances and needs which require a refined definition of the purpose of extension. In the past, agricultural extension was more often than not concerned with the transfer of well-defined packages or messages associated with a single cash crop or other farm component. Forestry outreach activities, in contrast, demand free-ranging and flexible modes of operation to respond to the diverse requirements of tree growing and forest management on-farm or on common or public lands. It is the need to tackle questions of land rights, the interpretation of land use policy, community organisation and conflict resolution, which complicates this.

Thus, we may generally define `forestry extension' as encompassing the range of productive, legislative and organisational relations operating across and around the farmer-agency interface. What is important here is the context - the relationships between the different groups of people involved in land management. In this situation, extension cannot be understood solely in terms of its function (the provision of advice, data collection and so on). It is also essential to examine it by the setting in which these communicative relations take place - such as the village meeting, the farm visit, and the in-service training seminar. Understanding the dynamics and limitations of each of these situations is imperative in designing cost-effective educational support materials.

Considering those documents for use within a land use organisation, the review has revealed gaps in the types of information and guidance made available to mid-level project coordinators and field staff. Four topics, in particular, are worthy of attempts to write new documents:

i) **Natural forest management**. Projects in many countries have now begun to explore participatory approaches to forest management, and we can expect to see a new generation of extension guides as experience from these, on appropriate survey techniques and planning and management strategies, is documented.

ii) **Resource tenure and the practical interpretation of forest policy**. Existing manuals which deal with tenure are generally confined to giving guidance on how to understand the status-quo. None, apparently, take this a stage further, to suggest ways in which commonly occurring tenure problems may be, or have elsewhere been resolved in practice.

iii) **Methods of monitoring that encompass both quantitative and qualitative indicators of project progress**. It is by now commonplace to bemoan the fact that forestry projects have often set the targets and measured the success of extension solely in terms of the numbers of tree seedlings produced, distributed or surviving. Yet to date few guidelines are available on alternative methods of monitoring which are beginning to be tried in many places.

iv) **Programme planning and organisation**. Forestry extension demands especially flexible

modes of operation. Guidelines are needed on different ways of actually organising work schedules based on existing models which have proved to be effective.

In all these situations, a key appears to lie in understanding the position of field staff at the interface between different realms of decision making. They serve as intermediaries between the statutory mechanisms for resource legislation controlled by the state, and the more elastic arrangements which often pertain to customary laws. In addition, they act as interpreters of information given to them orally by land users, which for monitoring purposes has to be recorded in written or codified form.

Turning to the documents which are written for land users, one problem which emerges above all others is that many appear to have been based on a somewhat arbitrary selection of the information to be conveyed. Underlying this is a discrepancy over what is `publicity' designed to boost people's awareness over certain issues, as distinct from `education' based on a well-researched understanding of what new information is actually needed by farmers. Several criteria have been put forward for what is meant by the terms `appropriate content' and `targeting':

i) The documents are made more effective if they are based on a detailed understanding of the information needs of a clearly defined audience;

ii) The most effective are those which are the product of several years experience as well as having been put through field testing;

iii) They should be planned as one of the on-going products of extension work rather than simply its point of departure;

iv) It is essential that the use of extension media of all forms is given a precise setting and carefully planned to coordinate with more interactive, person-to-person field activities;

v) The question of media selection is not so much that of the choosing between different media, but of finding the best ways of working though a coherent range of media.

Lastly, we should consider the question of replicability. To what extent can material developed in one place be useful elsewhere? In order to make the **content** applicable to new areas adaptations will almost always be necessary. The importance of field testing, with the audience, to ensure this is done with sensitivity cannot be over-emphasised. What is more readily transferable is the **structure** of the documents. It for this reason that attention has been given here to identifying appropriate and inappropriate ways of ordering and presenting different types of information and understanding.

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