



United Republic of Tanzania

MINISTRY OF NATURAL RESOURCES AND TOURISM

FORESTRY AND BEEKEEPING DIVISION

**GUIDELINES FOR PREPARATION OF MANAGEMENT
PLANS FOR NATURAL FORESTS IN TANZANIA**



A SYNTHESIS GUIDE FOR FOREST MANAGERS



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FOREWORD

For many decades in Tanzania plans for managing our natural forests were made without proper guidelines. An attempt in 1998 resulted in formulation of Draft Guidelines that were used in preparation of management plans of catchment forests. In the same year the new Forest Policy was approved. Among important statements of the policy is that *“To ensure sustainable supply of forest products and services and environmental conservation, and all types of forest reserves will be production and / or protection based on sustainable management objectives defined for each forest reserve. The management of all types of forest reserves will be based on the forest management plans”*. The interpretation of this statement is that all types of forests will be managed according to prescribed management practices.

In 2002 the Forest Act, which is an instrument to operationalize the Policy was enacted. Sections 11 (4) of Part III of the Act states that a forest management plan shall be prepared in respect of each forest reserve and private forest. Either sections 11,12,13 and 14 describe different categories of management plans and types of consultations in the course of preparation of such plans. However, there is no guidance on sequence and detailed contents of management plan of natural forests.

This publication details the content of management plan of natural forests in Tanzania. The sequential arrangement of different chapters are described in a manner that implementation of a management plans can be easy and more realistic. This publication was written by Tanzania foresters experienced in management planning over many years after a long period of consultations with forest practitioners and institutions. It is my sincere belief that forest managers in public or private forestry will make use of this document to achieve sustainable forest management of our natural forests.

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Published in December, 2007 by Forestry and Beekeeping Division

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RATIONALE

Tanzania is endowed with large valuable forest resources covering about 38.8 million hectares (41%) of the Tanzania's 94.5 million hectares (945,000 sq. km) total land area (FBD, 2002). Out of the total forest area, 57% are forests in non-reserved land, 37% are forest reserves, and 6% are forests in National Parks. Distribution of forest resources by forest type categorizes these resources into woodlands that cover 96%, montane forests and mangroves occupying 4% of the total forestland.

The challenge to manage forest resources as a national heritage on an integrated and sustainable basis to optimise their environmental, economic, social and cultural values in Tanzania evolves around the following overall policy goal of the National Forest Policy:

“To enhance the contribution of the forest sector to the sustainable development of Tanzania and the conservation and management of her natural resources for the benefit of present and future generations”.

Specific challenge facing the nation today as far as conservation of forest reserves is concerned, is constant threat by human activities such as encroachment, shifting cultivation and wildfires. Another concern is how to integrate in an optimal way the environmental, economic, social and cultural considerations in sustainable forest management (SFM). Obstacles have often been existing particularly cultural and economic constraints.

It is against this background that the National Forest Policy of 1998 together with the subsequently developed National Forest Programme (NFP) of 2001 provides the overall strategic framework for the development of the sector, which is legally guided by Forest Act No. 14 of 2002 and Forest Regulations of 2004 .One of the most important instruments to achieve SFM practices is a Forest Management Plan. The 1998 National Forest Policy Statements (1), (6), (18) and (20) and their subsequent directions indicate the need for management of all types of forest reserves based on forest management plans. Furthermore, Part III of the Forest Act provides legal backing and describes how planning and management can be achieved through

Management Plans for all types of forests. The NFP sub-development programme on Forest Resources Management Planning has been designed to facilitate periodical forest resources assessments in order to provide reliable information on forest resources on regular basis. This will ensure regular data collection, analysis, interpretation, dissemination, storage and updating of forest resource information for sustainable forest management planning. Such information is prerequisite for preparation and updating of forest management plans.

Important aspects of the Forest Act (2002) and NFP include participation of relevant stakeholders in the design of management plans for all types of forests. Government authorities/ agencies, NGO's, private sector and community representatives are participating partners in forest management plans depending on the type of the forests. Management plans are important tools for guiding sustainable forest resources management that will achieve a sustainable supply of quality forest products and services. These plans are also the basis for monitoring and evaluation of management practices as well as basis of policy, legislation and programme reviews.

It is against this background these guidelines are being prepared. A management plan of a natural forest shall have five main parts namely; (i) General description, (ii) Review of existing management plan, (iii) Management directives (iv) Management prescription, (v) Annual Plan of Operation (APO). These are followed by important appendices.

The main parts should be preceded by the following roman pages: The first page should contain the Title of the document with Emblem of the United Republic of Tanzania at the top, the parent Ministry, followed by name of the Division (Forestry and Beekeeping), name of the forest reserve, the District and Region where the forest is located, and the plan period. The title page ends at the bottom with month and year when the plan was prepared. The second page should indicate who prepared the Management Plan, the approving Authority and date of approval. The third page shall contain an executive summary, followed by acknowledgement if any and table of contents.

PART I

1.0 GENERAL DESCRIPTION

The descriptive part for the forest reserve will provide information regarding legal framework, magnitude of the problems, efforts and progress of the past forestry activities. Surrounding communities and associated land uses should also be described. A management map to which references are made in the text should always accompany the general description to assist the reader visualise the description information of the forest. The map should be appended.

1.1 Legal status, ownership and administration

Past history of the Forest Reserve should be stated i.e. when gazetted, amendments, Jb numbers of boundary maps, and which authority has been and is in-charge of the management.

Ownership should indicate if the forest reserve is owned by Central government, Local authority, or Private organization or Individual entity. Regarding administration, it should be stated who has the overall responsibility for the management of the forest reserve, i.e. which authority should be approached by others having interest in the same forest reserve, e.g. on mining, water exploitation, wildlife etc. The organogram should also be appended to show line of responsibilities among participating partners (Government/local communities).

1.2 Location

In case of gazetted forest reserve, the location is mostly described in the Gazette when the forest reserve was established. Some key notes to give eventual newcomers in the local management as well as others an introduction to the main features is however relevant according to the specifications below. The location

should be given with Universal Transect Marker (UTM) references available on the topographical maps or Longitudes and Latitudes. Indications on how to approach the forest should also be given, with a reasonable accuracy. It should be possible for a newcomer to find the area, that is, district, ward and village.

1.3 Size and boundaries

The area of the forest reserve should be given, accompanied by a note on who made the estimate. It is well known that estimates even appearing in the Gazette may have been made on a very weak basis, and they may contain significant deviations from the real area in the field. Special features on the boundary should be mentioned whether natural (river, etc) or artificial (beaconed and planted). It might even be beneficial to include the schedule and text of the gazette. If new knowledge on the location of the boundary has emerged, e.g. UMT – co-ordinates, this information should be included and boundary length should also be shown. A long list of co-ordinates may be put in an appendix.

1.4 Physical features

This section should provide information on the different natural factors that support this specific forest. If the Forest Reserve cover both mountain peaks and some surrounding plains, they are likely to display very different physical features. It is not necessary to give a detailed scientific overview of the conditions, but is should be enough to create a sufficient understanding of conditions and processes present in that particular Forest Reserve.

1.4.1 Topography and hydrology

Special and outstanding topographical features like mountains, peaks, lakes, plains, prominent slopes, cliffs etc. should be mentioned. As the catchment values are a special issue in many of the Forest Reserves, rivers, wells, wetlands, swamps etc.

need to be given special attention and description. Eventual information on the water flow and on various water gauges and extraction schemes in the immediate vicinity of the Forest Reserve is very relevant as well. References to the map should be made to improve the understanding. Note that the hydrology is not limited by the Forest Reserve boundary; an area of wetland directly dependent on water from a Forest Reserve should be mentioned.

1.4.2 Geology and soils

A general statement on the bedrock should be given; volcanic, gneissic, granitic, eventual mineral contents, the hardness and weathering among others. A brief description of the soil and its origin, contents of nutrients, dry or swampy is useful.

1.5 Climate

The climate in general as well as differences within the forest reserve due to aspect and altitude should be discussed. Rainfall pattern/season and amount in mm be shown. Also temperature range should be described.

1.6 Special sites and features

These might include places of worship, wells, viewpoints, and other special attributes. Sites that are not being mentioned elsewhere in the description should be discussed here. The forest reserve may contain sites of special importance or areas being in need of special management.

1.7 Historical events

Historical events that have had some influence on the current and past development of the Forest Reserve need to be mentioned, e.g. major changes in land-use, wide-ranging fires, wide-ranging logging which led to a ban of harvesting in catchment

forests, charcoal business, human population growth and resettlements and impacts on resource use. Significant changes in management may have occurred when different authorities were allocated responsibility for it.

1.8 Socio-cultural Rights and privileges

In some cases there are specific rights and privileges granted to single persons or groups during the process of declaring the forest reserve. The current status of these exemptions to the rule need to be described, as well as the effect they have on the present forest management. It is important to describe potential conflicts from claimed rights that have not been satisfied, and that may surface in the future. Furthermore, mention practises that have developed over the recent past, which may be seen as rights in the future; e.g. gathering of fuel wood, collection of poles for domestic use, beekeeping, etc. Rights and privileges should be clearly stated whether individual, communal or state and these should appear in the forest management agreements.

1.9 Biological aspects (Flora and Fauna)

Present an overview of the biological knowledge of the forest. It is also important to state what is not known to support future investigations. The need of biological survey is also important to establish biological/biodiversity base line data.

1.9.1 Natural forest cover (Flora)

A description of the forest and vegetation cover as it appears currently is needed. A clear distinction should be made between productive and protective forested areas, as found in the sub-section below.

1.9.1.1 Areas supporting production forest

Patches may be found within the forest reserve, which by zonation and inventory have the potential of supporting some kind of commercial forest operations, and possibly did so in the past. Potentials of this kind should be described with references to the map. Species and volumes should also be stated here. Similarly, some forest reserves may contain areas planted with exotic species. These areas should receive a special attention during the description. These areas could be useful for low-key utilisation by pit-sawyers, hence tree species, estimated volumes, and values should be stated. References should be made to the map.

1.9.1.2 Areas of protection forest

The remaining forested areas may contain significant valuable species, which need to be considered in a management plan. However, due to their importance in conservation values in catchments, biodiversity and soil erosion, minimum utilization particularly of dead wood and fallen trees could be considered in the management plan. Removal of invasive exotics as management practise by local communities could also be taken into account.

1.9.1.3 Other natural vegetation types

When wider aspects of biodiversity are to be considered, we should show the connection between the various ecotypes. Glades and heathland accommodate a different biological life than the dense forest; still it might depend very much on the forest. We should therefore show how interactions with references to the map that may have taken place.

1.9.2 Fauna

The wildlife may, to some degree, be described along with the forest cover as a special fauna is normally related to a specific kind of forest. However, some general issues may still remain. Some Forest Reserves might also be Game Reserves

indicating that the wildlife should receive special attention. Keep in mind that wildlife here includes more than large mammals; therefore avoid undue emphasis of large mammals.

1.9.3 Plant and animal species of Special concern

In addition to the general description of the vegetation and wildlife established above, special cases do occur which require special attention. We need here to present both the current knowledge, and what we expect to be found according to experience from other forests or forest reserves. Information on rare species, endemic species, outstandingly valuable species, specific medicinal plants, species or groups of species, which we feel have importance for management considerations should be discussed. For example, some monkeys may neither be endemic, threatened nor a problem still we may be forced to propose some specific forest management measures for their sound conservation.

Also, not only rare and endemic species are relevant here, but some popular timber trees which receive little attention during restocking and appear in decreased numbers as well as facing a reduced distribution due to current local and international demand should be considered in this subchapter.

1.9.4 Species posing management challenges

Some species residing in a forest reserve of both flora and fauna do cause problems. This might be an exotic tree species spreading without control in the forest, a tree dropping poisonous fruits in a water source, species promoting fires in the forest or a vermin. It should be possible from the description here to evaluate the seriousness of the problem, by assessing areas and people affected by such species.

1.10 Buffer zones and corridors

Areas surrounding the forest reserve may have significant impact on the management of the forest itself; we should therefore describe the buffer zone in question by stating its distance from the forest reserve, existing forest patches in the buffer zone etc. The purpose of this description is to provide facts for the evaluation of buffer zones, areas between settlements, the forest reserve, and the biodiversity in a positive manner. References should be made to the map.

1.11 Socio-economic status of adjacent communities

General description should focus on economic, community structures and composition of forest-adjacent communities in order to have overview knowledge of their resource concerns and needs.

1.11.1 Forest adjacent communities

No fixed distance may be set, but those villages and hamlets should be included, which do have or could have some influence or benefit from the forest reserve. For example, different management regimes may be implemented depending on whether the surrounding societies are mainly occupied by agriculture, pastoralism, logging or pit sawing. Here should be mentioned tribes residing in the adjacent local communities with their cultural aspects. We should also show population figures, major communication lines, tracks, roads, villages, centres, etc., with a reference to the map.

1.11.2 Local economy

The main lines of the economy should be stated, especially those having relation to forestry. Of importance are also issues that may affect the forest management; quality and importance of roads, normal channels of transport, and availability of local

labour in general, and local supplies, etc. The contribution of forest products extracted to the local economy and livelihood should be stated.

1.11.3 Local land-use

Under this sub-section, it is important to describe the relations between the forest reserve and the land-use in general. This should include an evaluation of the availability of forest produce to the communities from the surrounding areas and how important the resources of the forest reserve are to the communities

1.12 Other activities that could impact on the forest reserve management

In order to utilise the different efforts for the management of the Forest Reserve, we need to have a good knowledge of the different experiences. The different approaches could be counter-productive therefore unified efforts ought to be designed in the Management Plan. The notes below are therefore highly important for co-ordination purposes. Descriptions of the strategy utilised, the target groups, the area in question, and the human and financial resources employed are important for making relevant decision on our forest management. Programmes/ Projects at various administrative levels may have different impact on the forest management and they should be discussed accordingly. Such levels may include;

Programmes/ Projects at national level

Programmes/ Projects at Regional level

Programmes/ Projects at District level

Programmes/ Project by NGOs

Other institutions within the village.

PART II

2.0 REVIEW OF EXISTING MANAGEMENT PLAN

Under this part, review of the current management practice is to be done as the basis for future plans. Here also description of the survey of existing resources (biological, physical, financial and human) and existing management should be discussed. The methodology used in collecting data for next plan period should fall under this part.

2.1 Review of previous plan (if any)

Under this section, the main issues raised in the previous plan will be discussed including problems, success and items which need improvement. Policy and institutional issues which in one way or another influence the management of the forest can as well be discussed. Challenges related the management of the forest should also be discussed under this section.

2.2 Survey of existing forest resources

The recognition of the importance of biodiversity conservation and management is a recent development at national level, which should be incorporated in forest management plans. This section is expected to give a description of the existing biodiversity information to indicate current efforts in obtaining baseline data for monitoring species richness, diversity, and endemism.

Forest resources assessment data are an important management tool. The description on inventories done is expected to give the amount of growing stock, environmental and economic values of both wood and non-wood products. The information should also discuss whether the forest has been zoned and mapped or not to show areas and location for protection, production, and buffer zones (See Appendix 1). The descriptive part about mapping is also expected to discuss about changes in forest cover. The methodology of carrying out forest resource

assessment could differ depending on level of information needed. Whether Participatory Forest Resource Assessment (PFRA) or conventional Forest Inventory was done, explain how it was performed.

2.3 Forest reserve management activities

This section mainly deals with the description of typical forest management activities entirely targeting the forest, its surroundings, its maintenance, development, and utilisation.

Boundary consolidation

The boundary of the forest reserve should be reconfirmed because the current encroachment and shifting cultivation taking place in many forest reserves are partly contributed by unclear boundaries. It is therefore important to describe efforts done to minimise the problem with reference to boundary survey or re-survey; digging directional trenches and installation of beacons; boundary planting, weeding and maintenance.

2.3.2 Forest protection

Protection activities cover fire prevention and suppression, fire-lines establishment and maintenance, patrolling, and law enforcement. Accounts of effectiveness of these activities are expected to indicate trends of illegal or threats of forests. Information on revenue accruing from fines, sales of confiscated forest produce and alike should be provided. It should be noted that there is need to separate information on illegal activities carried out in a reserve with those occurring in public lands. This is important in assessing the effectiveness of the protection mechanism by involving forest adjacent communities in minimising forest threats or illegal activities. Under forest protection, it is important to document any pathological or entomological condition which has affected or has a potential to affect forest.

2.3.3 Forest restocking and natural regeneration

Gap filling and natural regeneration in a forest reserve contribute to effective maintenance of adequate forest cover. This sub-section will give an account of efforts done regarding gap planting and natural regeneration in terms of species, methods, survival rate as well as input resources; establishment of nursery – the past targets, production, species, resources used, etc.

2.3.4 Nurseries

Review past targets, production, species raised, survival rates, resources, number of seedlings distributed, farmer's own records, etc. These data are among monitoring and evaluation tools that can be partly used by an extension worker and local communities to gather, synthesise and analyse information concerning community forestry in a way that is appropriate and participatory.

2.4 Management of buffer zones and corridors

Buffer zones provide gradients between forest reserve areas and multiple-use land and are meant to provide alternative sources of forest products to the local communities. It is therefore important to describe efforts done in collaboration with local people to establish buffer zones around forest reserve and corridors to link fragmented forests. Also describe the manner in which local communities obtain benefits from forest reserve. In addition, description about buffer zones management should include any provisions regarding afforestation and reforestation activities including *in-situ* and *ex-situ* programmes undertaken.

2.5 Watershed areas management and soil conservation

Sustaining water supply is a central issue in the protection of catchment areas or water sources such as rivers, streams, wells, and wetlands. It is evident that there is need to describe current management planning and practices regarding identification of hydrological stations and water sources, quantity and quality water measurements, management of watershed (Riverine zones, steep slopes and alignment of road network), and protection of water sources (rivers, streams, wells and wetlands).

2.6 Physical resources

Give a description of information about existing investments like buildings, installations, vehicles, motorcycles, communication etc made to-date. There should be both quantitative and qualitative description covering their numbers, status, running and maintenance, etc.

2.7 Human resources

2.7.1 Staff

Proper forest reserve management has often been constrained by inadequate trained staff. The basic aim of this sub-section is to describe the status of staffing levels in terms of numbers and quality. Description about the current organisation set-up for the management of the forest reserve in relation to local communities to carry out the operations on a regular basis, and the responsibilities of staff and the community as a whole are key factors to assess the efficiency and effectiveness of forestry activities.

There should also be a description about casual labour as it has been a major input to the management in the forests. However, keep in mind that the facts needed about staff and labour should mainly focus on the organisation of work in the field at different levels, supervision and monitoring, the routines and regularity of supervision and monitoring.

2.7.2 Training

Training represents an important element of capacity in terms of work performance of the staff and local communities. The description should focus on efforts done to improve human resources capacity in the field and at managerial levels both in numbers and quality. Such efforts might have been done through refresher, short term-tailor made courses, long-term courses; seminars; study tours; exchange visits; etc.

2.7.3 Forest adjacent communities

Communities living adjacent to the forest reserve have significant role to play in the management of the reserve. They participate in management of the reserve in form of Joint Forest Management (JFM). It may be not the whole village taking part in managing the reserve but, organized groups are entrusted on behalf of the whole community. The participation is usually governed by norms and local regulations. Explain how this is done.

2.7.3.1 Community organisations

Community organisations can be defined as collections of people who have a reason or purpose to work together to accomplish a certain goal. There may already be organisations e.g. traditionally organised groups functioning in the community that have the role concerning conservation activities or organisations that can be formulated and strengthened to take on forest conservation roles. It is generally believed that these organisations are key resources to the success or failure of implementing forestry programmes. It is therefore important to give description of the existing or established organisations, particularly on the process employed to establish them and the current efforts to make them work with local communities in the management of forest reserve. Such formulated organisations may be known as Community Based Organizations (CBOs), Village Natural Resources Committee (VNRC), etc depending on resource(s) to be managed.

2.7.3.2 Instruments to facilitate community participation

Issues related to community participation in the management of forest reserve are often linked with aspects of ownership and property rights. As such, they often require legal backup for effective management and utilisation of forests. Fundamental objective of the legal backup is to make provisions for encouraging and facilitating the active involvement of individuals, local communities, Non-Governmental Organisations (NGOs), etc in the sustainable planning, management, and use of forests.

Description about instruments to facilitate community participation should focus on the current efforts in formulation and effecting by-laws, and Joint Management Agreements (JMAs). The contents of by-laws and JMAs should include description of the rights; rules governing and regulating the use of and access to the forest reserve and the resources of the forest reserve; incentives; penalties; communication; benefit distribution; participation in decision making, etc. Appendix II and II are formats for JMA and Bylaws.

2.8 Extension services and socio-economic studies

The success of forest reserve management depends very much on the efficiency and effectiveness of the two-way communication between the people and extension agents. Therefore, description of current extension efforts related to the forest reserve management will be needed. Example of such efforts may be publicity activities, village meetings, field visits, efforts to address gender issues, training on establishment and running of tree nurseries, integrated extension services, etc.

It is also important to describe existing information on the conducted socio-economic studies e.g. Participatory Rural appraisals (PRAs) with data related to access to resources, prevailing division of labour, cultural factors, etc. The aim of this part is to

document baseline socio-economic data to facilitate objective decision making, strategies, and activities that are realistic and practical.

2.9 Marketing and initiatives for revenue generation

As the revised forest policy emphasises the need to expand ways of revenue collections, potential sources of income or revenue generation from forest reserves should be described in this section. There are economically and environmentally friendly activities in forest reserves that can increase and promote revenue for the benefit of forest owners, communities, and sustaining forestry activities. Such potential sources of income in forest reserves include eco-tourism, beekeeping, and sustainable harvesting of specific parts of forest for wood and non-wood products. Opportunities for marketing forest products and services such as quality bee products and eco-tourism should be explored and discussed

2.10 Potential values of the forest

Discuss how the potential values of the forest reserve may be used under different regimes of utilisation. Specific links should be made to the economic value such as value of forest produce- commercial and non-commercial; value of wildlife; value of water for electricity, irrigation, and drinking. Other links should be made in relation to value of mining; value of tourism; local employment-casual labour; social values; value of biodiversity and how this may change in the near and more distant future. The different regimes and scenarios should as well be supported by political considerations so as to make the discussion more clear. This section should categorise various values of the forest in the context of global, national, regional and local relevance.

2.11 Inter-sectoral linkages and co-operation

There are various sectors related to land use which have interests in forest areas and forest resources. As such, the management and administration of use of forest areas and forest resources require collaboration and co-ordination across various sectors. The sectors include agriculture and livestock, tourism, energy and minerals, land development, water, wildlife, environment, private, and research institutions. The co-operation and joint efforts between the different sectors responsible for operations in one way or another related to management and utilisation of the reserve should be stated in this part. Of particular importance is the description about Environmental Impact Assessment (EIA) for development activities such as road construction, tourism, dams, etc if any. There should also be a description about progress on the management of buffer zones and biodiversity corridors, and activities related to research.

2.12 Financial resources

Summaries of the financial turnover resulting from management utilisation of forest reserve should include revenue, budget showing sources of funds, and expenditure for various items.

2.13 Management challenges

Following review of implementation of the previous management plan there could be challenging issues that have emerged. Such challenges that are related to management of the forest should be discussed in this section. These could include issues that hinder participation of various stakeholders in the management of the forest, pressure from development investments, alternative financing mechanism such as Payment of Environmental Services (PES), absence of harvesting plan, etc. These challenges need to be addressed in the next plan period and form part of the prescriptions meaning that if not addressed that objective of managing the forest will not be met.

PART III

3.0 MANAGEMENT DIRECTIVES

This is an important part of the Management Plan which discusses different alternatives for managing the forest and how the decision on the strategy for management is made; which issues are considered to be more important than the others in accordance to National Policies. Also it narrates which decisions are made on political, practical and development basis including global and regional initiatives.

3.1 Global initiatives, Policy statements and directives

Sustainable Forest Management practices have to respond to wider global and societal trends. In principle, instruments for achieving sustainable forestry practices exist or are being developed through various national and international processes and initiatives. Categorize various forest conservation and management commitments/ obligations in the context of global, national, regional and local relevance. The UN Conference on Environment and Development (UNCED) in 1992 adopted globally authoritative Forest Principles and cross-sectoral recommendations on forest conservation (Chapter 11 of Agenda 21) encompassing holistic and cross-sectoral approach and stressing the sovereign right of individual countries towards sustainable forest management.

The hierarchical directives can therefore involve Global and Regional conventions, agreements, resolutions and recommendations of international organizations and conferences and other programmes. It is therefore important to present the relevance of policy statements and their implications to management of the reserves as an entity and/or ecosystem (s) to any of the following global and regional initiatives: Convention on Biological Diversity (CBD), the UN Convention on Combating Desertification and Drought (CCD) and its protocol; United Nations Framework Convention on Climate Change (UNFCCC) and the Kyoto Protocol; United Nations Forum on Forests (UNFF); Convention for the Protection, Management and

Development of the Marine and Coastal Environment of the Eastern African region and related Protocols.

National Forest Policy, the Forest Act and the National Forest Programme and other related policy statements such as environmental policy, related land use policies, and Local Government Reforms that may affect or support the management of the forest reserve and/or other ecosystem(s) need to be stated. It should be noted that it not a matter of just mentioning the policy area objectives and statements but an analysis of issues in the context of economic, biological environment, cultural, and social framework.

3.2 Management objectives and their management tools

3.2.1 Statement of objectives

Clearly set out the economic, environmental, and social objectives to be achieved in the management of the forest and strategy for implementation in the coming planning period. The main goal, objectives, and targets/outputs should be stated taking into considerations whether the forest is productive, protective or mixed forest. Here further elaboration may be added if the reserve saves as watershed protection, biodiversity conservation, recreation, cultural purposes or energy production. Also the financial implications should be briefly presented. Past long-and short-term objectives for the management of the forest reserve should be discussed, showing whether they were successful or not, and why. In addition, describe how management objectives can be achieved within the following specific management tools:

3.2.1.1 Forest management zones

Discuss how zoning of the forest will be determined to facilitate the use of specific parts of the forest for specific purposes and describe those purposes. Each zone covers an area subject to a specific management regime. Such zones have presumably also been described in previous management plans; it should not be completely new issue. However, compare the previous management objectives of the zones with the current ones, discussing how it is proposed that the zones will be

managed and utilised. Relevant forest zones for the management of natural forest reserve may be:

Biodiversity Zone

Catchment Zone

Amenity Zone

Production Zone

Community Use zones

Biodiversity Corridors for wildlife passages

The criteria for marking and demarcating such management zones are described in Appendix 1.

3.2.1.2 Forest Management Units

Management unit is a geographically parcel of forest or land usually defined by watershed, ownership or administrative boundaries for purposes of locating and implementing management prescriptions. Village Forest Management Area (VFMA) means the whole or part of a LAFR or NFR which has been placed under the management authority of an adjacent Village Council. In this part of the management plan, describe how the forest could be further divided into administrative units, which reflect forest area falling adjacent to village or community in order to facilitate management with local communities.

3.2.1.3 Management maps

Management map shows management units and the different zones of the Forest Reserve. It is the most important part of the document to indicate the expected progress of management activities over the years covered plan. The relation between the different efforts and zones are visualised on the map, and it serves as a guideline for efforts on community planning in the surrounding areas. Therefore, it needs to include all relevant information.

PART IV

4.0 MANAGEMENT PRESCRIPTIONS

This part deals with developing, planning, assessing, and implementing prescriptions – a schedule of activities for a forest or part of it for specific planning period. Management prescriptions prescribe objectives for the activity, treatment schedules-timing, methods, and conditions, which will manipulate the forest and other resources to achieve planned outputs. It also takes care of the issues related to the sustainability of achievements and budget implications for each decision.

4.1 Forest management operations

4.1.1 Forest resource assessment and monitoring

In this part, establish the type and frequency of an inventory data required during the planning period. It is important to clearly state the objective of the inventory for each management zone. Describe if there is need for regular mapping of the forest to monitor changes of forest cover and its boundaries.

Prescribe the plan to collect and use data on fauna and flora in order to establish baseline data for planning purposes, and monitoring and evaluation of species richness, diversity, and endemism on regular basis. The plan should describe the methods to be used. Include Participatory Forest Resource Assessment (PFRA) where ever possible to minimize costs. Other methods could include Threat Reduction Assessment and Management Effectiveness Assessment as these are mandatory for GEF projects.

4.1.2 Harvesting plan

Prescribe a plan for harvesting operations to be done inside the forest reserve specifically for production forests. The harvesting plan should indicate amount of merchantable volume to be harvested by diameter classes and tree species. The

plan should also prescribe type of equipment allowed in such operations. Normally such equipment should minimize the disturbance of tree species diversity in order to avoid intrusion by invasive plants. Possibility of marking harvesting copes, where to start and control mechanism need to be prescribed. The implementation of harvesting plan should follow directives prescribed in the "Guidelines for Sustainable Harvesting and Forest Products Business in Tanzania " issued by Forestry and Beekeeping Division.

4.13 Silvicultural systems (prescriptions)

Detailed discussion to cover prescribed Silvicultural systems should fall under this part e.g. adoption of coppice Silvicultural systems, tending of climbers etc to reflect the need to address management objectives. If the forest reserve is having invasive plants causing management problem, discussion how to tackle the problem. Communities could use them through selective cutting as incentives to participate in management particularly in protective forest reserves.

4.1.4 Boundary Consolidation

Prescribe treatment schedules required in a forest reserve in relation to boundary survey or re-survey, planting, and weeding. Standards should be maintained and observed in term of frequency, boundary width, suitable species to be planted, etc. On the basis of socio-economic surveys, efforts to involve forest-adjacent communities in maintaining forest boundary should be described. For example, communities may be willing to practice agroforestry, or participatory management of the forest boundary planting strip in forest boundary, which if properly planned this approach can be effective.

4.1.5 Forest Protection

Protection activities should ensure the continued existence of forest values. Measures to address forest threats must not be restricted to the forest reserve.

The plans should put emphasis on how forest-adjacent should be involved in minimising threats. For example, the plans of operations should draw an action plan to conduct patrol and monitoring plan as part of Joint Forest Management.

4.1.6 Forest Restocking and natural regeneration

Prescribe a schedule of activities pertaining to gap planting, enrichment planting, weeding, and assessment of the planted trees in gaps and boundary. The plans should set standards such as planting suitable species, prioritising activities, etc. Planting should be carried out in poorly stocked areas or invasive plants have been removed; whereas natural regeneration should be encouraged through effective protection mechanisms.

4.1.7 Nurseries

The projected targets of seedlings in the nurseries should reflect the needs as expressed in the activities concerning boundary planting, restocking through planting. Clearly distinguish the needs of the each forest reserve if a nursery supports more than one forest. The plan should also put emphasis in promoting private nurseries to supply seedlings for community and farm forestry especially in the buffer zone areas.

Furthermore, the choice of species in the nursery is considered as a relevant issue in management of protection forests, and it should be elaborated in the management plan. Reasonably firm guidelines should to be stated here, that may subsequently be monitored.

4.2 Management of buffer zones and corridors

It is important to describe plans for putting into place a mechanism for managing buffer zones and corridors in ways that are ecologically adaptive and that emerge from a careful appraisal of development opportunities and needs of the people. Buffer zones management should provide an opportunity to preserve traditional species of tree crops, fruits trees, and multipurpose trees. Wherever possible plans for buffer zones and corridors management should focus on promoting the use of these local varieties and avoid introducing exotic species. However, exotic species woodlots, private/community/ village forest reserves where possible, can be established in land outside protection forest reserve to provide alternative sources of wood and thus reduce pressure in the reserve.

4.3 Watershed areas management and soil conservation

Prescribe the plans for specific provisions for the protection of water sources from upstream to downstream such as rivers, streams, wells and wetlands. This should also cover aspects of soil conservation in riverine zones, steep slopes, along roads, etc. The main purpose of this operation is to improve and maintain quantity and quality of water flow from the forest reserve specifically for protection forest reserves.

4.4 Physical resources

Summarise necessary investment required in infrastructure such as roads and means of communication. Facilities like buildings, tools, equipment, transportation etc. which are required for effective management of the forest should be planned in terms quantity and quality. For example, a forest road may be constructed for the purpose of protection and general forest management, while a tractor-trailer may be needed for transport of seedlings during enrichment planting.

4.5 Human resources

4.5.1 Staff

Manpower recruitment is often planned to ensure adequate professional, technical and specialist staff is developed at both managerial and field levels. Based on manpower inventory, establish a plan to recruit and retain various categories of staff with focus on participatory conservation and management. This should go hand in hand with appropriate job description of staff. It is also relevant to justify and estimate the use of casual labour for certain activities.

4.5.2 Training

As with recruitment of human resources, training is rarely designed to serve a particular forest reserve. It will be relevant to describe briefly training plan or programme showing whether staff and forest-adjacent communities responsible for that particular reserve are also included. If there are general needs for training related to the specific forest reserve, it should be mentioned to facilitate the higher level planning.

4.5.3 Enhancement of community participation (JFM)

4.5.3.1 Community organisations and institutions

It is essential to analyse the potential of the existing or newly established organisation in terms of its effectiveness to undertake responsibilities. Assessment should focus on organisation's willingness to carry out activities such as creating an extension plan which will involve all or at least a major part of the community, encourage other groups to join in forestry extension activities, and providing committed leadership. Agreements may be set or established so that the local group or organisation is committed to provide leadership in efforts to manage the forest.

Prescribe the process and plans to follow in order to formulate and strengthen community organisations to facilitate/ coordinate management of protection forest and wood resources (woodlots, village forest reserves). The resources to be involved should be addressed. The formulated organisations are the ones to be used as a bridge between the government and the local communities on the whole issue of JFM. Note that VNRC is the forest manager within a Joint Management Area or forestland under Community Based Management.

4.5.3.2 Instruments to facilitate Community participation

If there are no formulated Village by-laws and Joint Management Agreements, describe how facilitation meetings should be conducted to come up with such instruments. Once these instruments are in place, prescribe procedures to make amendments or revision in relation to their contents. (Appendix II and III)

4.6 Extension services and socio-economic studies

4.6.1 Extension services

Involvement of local communities in forestry-related planning and decision making implies the need to promote participatory extension methods and approaches. The purpose is to prescribe approaches, activities, and field procedures, which an extension staff can apply to sensitise the community and transform plans into effective actions. Meetings, radio programmes, video shows, ngoma troupe, film shows, home visits, etc. are some of the examples of extension methods to be addressed.

4.6.2 Socio-economic studies

The plan of operations for forest reserve management with local people will also imply an understanding of group processes, socio-economic and cultural patterns. Further, there is need to understand the needs and goals of the people, how they can

be reached, under what conditions the people will participate, how benefits accruing from forest management will be distributed and appropriated. On that account, regular plans for socio-economic studies or surveys such as PRAs are expected to generate information to develop viable and enforceable forest management plans in respective communities particularly when expanding to other villages or forest reserve. Important socio-economic data from such studies could be cultural factors, division of labour, access to resources, roles and responsibilities, and economic status. Such information is useful when developing JMAs.

4.7 Initiatives for revenue generation and sharing

In this part, plans should focus on promoting and increase revenue collection that would benefit the participating communities. Prescribe a schedule of activities to identify new initiatives for revenue generation and ways to operationalise them. e.g. introducing beekeeping activities in the reserve and village lands, and water user rights. Another source of revenue particularly from catchment forests is charging water user fees to institutions such as Tanzania electrical Supply Company (TANESCO) for generating power, Water Authorities and Irrigation schemes for water supply. Initiatives for the potential of applicability of Pay for Environmental Services (PES) could be prescribed here. A mechanism for sharing of benefits with participating communities should also be prescribed. Understand that such mechanisms are incentives to communities.

4.8 Inter-sectoral linkages and co-operation

The purpose of this part is to promote cross-sectoral co-ordination on the forest related issues in environment and natural resources management and conservation at the central and decentralised levels. Plans of operations should focus on formulation of action plans in areas of overlapping interests and promotion of an integrated extension system for natural resources management. Other areas, which should be covered in this part, include research and issues related to Environment Impact Assessment (EIA).

PART V

5.0 FINANCES, BUDGET, MONITORING AND REVISION

5.1 Financial implications

Summarise the financial implications of the activities suggested above according to the standardised coding system employed. The budget estimates should be realistic according to available resources, or resources that may presumably be available. It will be wasteful to develop a budget for a forest reserve where expenses are doubled or tripled in real terms compared to past experience as seen in the description, unless significant new activities are designed. The budgets must further be distributed to "recurrent" and "development" expenditure, and realistic suggestions for sources of funds- foreign support, local funds or funds from the retention scheme. A summary of the projected revenue should also be presented. In essence this is a summary of Appendix IV.

5.2 Annual Plan of Operation

In this section, Annual Plans of Operation (APO) for the planning period are formulated based on management efforts described in Part 4 above. Plans should be formulated to reach the targets of an activity. The planning period for a management plan is often five years. If some options are still left open and await a decision, or when, for example, financial constraints are expected, then different scenarios could be planned for. Details of activity schedule and budgets should be presented in Appendix IV and V.

5.3 Monitoring and evaluation

Monitoring and evaluation are on going activities in the management of the forest. An effective monitoring and evaluation plan should be developed to ensure activities are implemented according to plans. The plan should also take into account the necessary conditions (external factors) required for successful management of the

forest. Participatory Monitoring and Evaluation (PME) where community is involved an important tool to be used here. The National Forestry and Beekeeping Database (NAFOBEDA) could be used as a monitoring facility.

5.4 Constraints

It is useful that conditions, which are outside the management of the forest, are described in detail in order that they can be monitored. The relevance of such description is that, it enables the managers to assess those conditions (external factors) in order to indicate the chances of success in the management of the forest.

5.5 Planning period, amendments, and revision

This part should indicate period of management plan (e.g. 5 year plan), what authority that may approve which changes, when the plan should be revised, and who will carry the obligation to initiate the revision.

6.0 References

A management plan is a working document so important citation that contributed to the production of the document should be mentioned hereunder.

Appendix 1: Important concepts

1. Maps and zones

Management Zones are always marked on a map. The map describes any location better than words and makes the understanding and evaluation of the suggested management prescriptions easier. We should keep in mind that the plan must be understandable, interesting and useful for all forestry staff, the Director of Forestry and Beekeeping as well as the Forest Attendant in the field.

The zones described below appear according to importance. We must decide on the high-protection area before the low-protective ones. The zones may further not necessarily be continuous on the map and may also contain several parts (compartments) with various prescriptions. Each of the prescriptions needs to be marked on the management map.

1.1 Biodiversity Zone

The Biodiversity Zone exists to protect areas of high biodiversity, migration routes etc.

Management: Harvesting or disturbance of natural vegetation and wildlife should not take place apart from research and educational purposes.

1.2 Catchment Zone

The Catchment Zone exists to protect the natural catchment values of the forest and to prevent erosion. It is defined mainly based on hydrology and slope.

Hydrology: The 60 metres on either side of streams, and covering the upper part of the catchment to the watershed ridge. This definition should be applied with some care, as it is possible to carry out without any investigation in the field.

Slope: Slopes steeper than 40% are included. We have chosen a slightly higher figure than normal for agricultural fields (30%) due to forest management practices leaving the soil less subject to erosion.

Management: Within the Catchment Zone there should be no harvesting or other disturbance of natural vegetation except for rehabilitation of the forest cover under normal management practices.

1.3 Amenity Zone

The amenity Zone contains an area of typical or unusual natural topographic features for the purpose of recreation, education and research.

Management: Facilities for visitors like paths, nature trails, basic cabins etc. could be developed in this Zone. Exploitation other than for educational and research purposes should not take place.

1.4 Production Zone

The Production Zone produces timber and other forest produce on sustainable basis. It is that part of the Forest Reserve which is not included in any other Zone. A stand of exotics tree species that cause management problem could be included in this zone.

Management: Within the Production Zone exploitation of the timber resources and other forest products is permitted according to established procedures for selective harvesting, including regeneration. Mechanical logging is not permitted.

1.5 Community buffer zones

The Community Buffer zones are usually found outside Forest Reserves where communities affect the management of the Forest Reserves nearby. It is the area of land outside the forest reserve whose management interventions will ease pressure

of demand of forest products from the reserve forest. We need therefore to establish one area of interest where we may expect to see effects from inputs being provided.

Management: Nearly all efforts facilitating and improving the management of the Forest Reserves could be appropriate including gap planting, protection and controlled utilization by community members.

1.6 Community use zones

Part of the forest reserve where community members are allowed to collect/ remove dead and fallen wood.

Management: Within the Zone there should be no harvesting or other disturbance of natural vegetation except for rehabilitation of the forest cover under normal management practices such as removal of exotic invasive tree species.

1.7 Biodiversity corridor

The Biodiversity corridor is usually outside the Forest Reserve. Management of the zone would enhance the biodiversity value of the Forest Reserve. Considerations should be made on special biotopes not found in other Forest Reserves e.g. wetlands, connecting forest strips not reserved.

Management: Efforts should be focused on maintaining a continuous natural distribution of biotypes in these buffer zones, and it may be expressed in a number of ways. Some few continuous lines of trees may greatly facilitate bird migrations, while other animal groups may require more clear corridors for migration.

Appendix ii: Guidelines of Joint Forest Management Agreement (JFMA)

TITLE

Joint Management Agreement between the Director, Forestry & Beekeeping Division / District Executive Director, X District and X village of X district, in respect of X Village Forest Management Area in X Forest Reserve.

1 Description

This describes the intended Village Forest Management Area [VFMA]. It says –

1.1 Where it is [e.g. within which X Forest Reserve], the kind of forest found within it, estimated size [ha], and its condition or any special features about this VFMA

1.2 Briefly describes the boundaries of the VFMA, and how they are visible, and who has agreed to these. Refer to map in management plan

2 Purpose

This lists the matters that are subject to this agreement; for example:

It is agreed that the members of x community, adjacent to X VFMA, will protect and manage X VFMA. Details of management are provided in the Management Plan. This was adopted by X Village Assembly and DFOB/DED X District on x Date, subject to this Agreement.

3 Objectives

This lists the aims of Agreement; for example – The objective of this Agreement is to bind each party to the commitments made herein and to practice the management of X VFMA in strict accordance with the Management Plan. For example the objectives of the management of X VFMA are taken from the Management Plan and may include:

To restore x VFMA to intact forest as quickly possible; To maintain it in intact condition indefinitely; etc.

4 Parties to the Agreement

This Agreement is made between:

Village Council of Village X.

And

Forestry & Beekeeping Division or District Council (hereafter referred to as “government partner”)

Or: Director X Company (if private sector) District Council, acting as witness (when NFR)

5 Manager and duties

It is hereby agreed by the partners to this Agreement that –

X Village Council, X Village is the Manager of x VFMA for the duration of this Agreement;

X Village Council will cause the election and appointment of a dedicated committee, called the Village Natural Resource Committee (VNRC), which shall be entrusted with the management of the VFMA

X VNRC will manage in accordance with the provisions of the Forest Management Plan for this area;

6 Management Activities

The functions of management for which x VNRC will be responsible include the following and will be implemented in accordance with the Forest Management Plan

7 Rules regarding access and use of x VFMA

The rules, which will apply, are as set out in section x of the FMP and the approved Village Bylaws.

8 Right-holders

8.1 All residents of x Village have rights to use x VFMA in accordance with rules referred in paragraph 7 above.

8.2 To the best of the knowledge of the parties to this Agreement, there are no other persons or bodies that have rights to use x VFMA other than as set out in the FMP and Bylaws.

9 Funds

9.1 All income from fines and fees from permitted use of forest products, income from sale of confiscated goods and grants from government for forest management will be deposited in the VNRC account and expended according to the provisions of the FMP

9.2 All records pertaining to the collection, recording and expenditure of funds relating to the management of x VFMA will be subject to audit by x District Council on an annual basis or by a person appointed by FBD for this purpose.

10 Resolution of disputes

10.1 Should either partner to this Agreement have cause to find the other partner negligent in its responsibilities, it shall first report this matter to the District Executive Director requesting that officer to appoint an independent person to mediate.

10.2 Should mediation fail to resolve the dispute, the aggrieved partner to this Agreement shall report the matter in writing to the Director, Forestry and Beekeeping Division copied to the Manager and the DED of x District Council, requesting an independent investigator to examine the facts and recommend action.

10.3 Should mediation from Director of Forestry and Beekeeping fail to resolve the matter, it shall be taken to a court of law and resolved through legal means

11 Duration of Agreement

11.1 This Agreement shall come into effect on the date it is signed and witnessed by the signatories and shall be in effect for x years from that date (5 years is usual duration).

11.2 Three months prior to the last day of the term of the Agreement, the Manager of X VFMA shall submit to the government partner a request for an extension of the term of the Agreement, the renewal of the Agreement for a further fixed term, or the renewal of the Agreement with recommended Amendments.

11.3 In the event of no action being taken by the government partner to extend, renew or modify this Agreement after one year from the date of its expiry, it shall be assumed that the existing Agreement has been extended for an un-fixed term and the Manager shall be expected to maintain management as if this Agreement had been extended.

12. Attachments which form part of this agreement

- i) Village Bylaws for forest management
- ii) Management plan in respect of X VFMA

13 Revision of Agreement

Should either partner to this Agreement wish to amend the terms or details of this Agreement during its term, that partner shall submit in writing the changes requested and these shall be considered by the other partner, and pending agreement to the change, an Amendment will be attached to this Agreement, dated and signed by signatories of both partners.

14. Penalties

The penalties that will apply and the procedures through which they will be applied are as set out in section x of the FMP.

Signed:

For Community Partner to this Agreement:

Chairperson, X Village Council & Date

For Government Partner to this Agreement:

District Catchment Forest Manager, X District & Date

Or:

Zonal Mangrove Officer, X Zone, & Date

Or:

Plantation Manager, X Forest, & Date

Or:

DFO , X District - representing DFOB – (if National Forest Reserve)

Or:

DED (if LAFR)

Witness to agreement:

District Executive Director, X District Council & Date (if National Forest Reserve)

Appendix iii: A Model Format of Village Bylaws

Section 1: Title of the Bylaws

This says that this Bylaw shall be known as Village Bylaws for Joint Forest Management and has been made under Section 167 of the Local Government (District Authorities) Act No. 7 of 1982 and recognised in Section 31 of the Forest Act No. 14 of 2002

Section 2: Glossary

This states the meaning of different terminologies used in the village bylaw

Section 3: Subject & Purpose of the Bylaws

This names and describes the forest reserve (in government or private ownership): estimated size and status

The boundaries are described.

The location of the VFMA is stated

The purpose of the Bylaws is stated: e.g. 'to empower villagers to fully participate and exercise the roles and responsibilities in the management of forest resources and effectively enforce the rules and regulations set out in these Bylaws'.

Section 4: Manager

This identifies the Manager (usually a Village Council) and the role of the Village Natural Resource Committee (VNRC) and sets out its duties and powers. For example:

The Village Council is the Manager of the VFMA

The Village Council will cause the election and appointment of a dedicated committee, called the VNRC, which shall be entrusted with the management of the VFMA

The VNRC will manage in accordance with the provisions of the Forest Management Plan for this area

Section 5: Rules

This sets out each and every rule or 'law' of access, use and protection of the VFMA
It may be convenient to divide these into different sets of rules:

Uses of the forest which are prohibited

Uses of the forest which are permitted through a licence

Uses of the forest which need permission but no fee

Uses of the forest, which are freely available.

This section should also note who may use the forest. If use is restricted to members of the village, this needs stating.

The village may also like to install General Rules such as a rule forbidding persons living next to the forest from burning crop residue, a rule requiring every villager to report damage seen or knowledge that an offence has been committed, to help fight fires in the forest, etc.

Section 6: Procedures

This is where the community states exactly how it expects offenders to be apprehended and fined, how the fine will be paid and receipted.

This section will also include a statement of which conditions will an offender be sent to court and how the bylaws expect the court to handle the offence.

Section 7: Expenditure

It will describe the consequences and penalties for responsible persons who fail to follow the provisions of the management plan regarding finances

Section 8: Penalties

This sets out the precise penalties and fine for each rule broken. Furthermore, it may state that the VNRC reserves the right to

To charge an Apprehension Fee to cover the costs of catching the offender

To charge compensation costs

To order the offender to carry out certain public works [such as boundary clearing or tree planting] in lieu of paying damages or in lieu of the fine.

This section should also list punishments to be given to leaders or members of the VNRC who are found to be abusing their position of responsibility.

Section 9 Amendments

This will state that amendments, which are not contrary to the spirit of the Bylaws, may be made, usually through submission of the proposed change to a Village Assembly.

Notification of the change should be copied to the District Council and/or to FBD.

Section 10 Date of Commencement

This states the date the Bylaws will come into operation.

Signatures:

.....

Village Chairperson,

.....

Village Executive Officer

.....

District Council Chairperson

.....

District Executive Director

Appendix iv: Schedule Of Activities For Fr For 5 Years

ACTIVITY/OUTPUT

YEARS

	2002/03	2003/04	2004/05	2005/06	2006/07
. Boundary resurvey (Beacon & trenches)	_____				
. Boundary clearing	_____				
. Boundary planting	_____				
. Beating – up	_____				
. Boundary weeding	_____				
. Boundary maintenance	_____				
. Forest Patrolling	_____				
. Fireline establishment	_____				
. Fireline maintenance	_____				
. Nursery Establishment	_____				
. Enrichment planting in Forest reserve	_____				
. Beating – up in Forest reserve	_____				
. Initiative for income generation activities	_____				
. Extension services	_____				
. Social economic studies (PRA)	_____				
. Biological surveys	_____				
. Institutional Capacity building	_____				
. Infrastructure, tools and equipment	_____				
. Training (Seminars, workshop)	_____				
. Monitoring & Evaluation	_____				

