

**MANUAL OF PROCEDURES  
FOREST RESOURCE MANAGEMENT PLANNING IN THE HFZ  
SECTION A - STRATEGIC PLANNING**

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# **Manual of Procedures - Forest Resource Management Planning in the HFZ**

## Preface

The Manual of Procedures for Forest Resource Management Planning prescribes the important tasks to be carried out in order to adequately plan for forest resource management in the high forest zone in the interest of the nation and for the benefit of the resource owners.

The planning process can be divided into strategic and operational planning. Strategic planning sets objectives to guide forest resource management in the long term. Operational planning ensures that programmes of operations to achieve strategic objectives are adequately planned and sufficiently resourced. The new planning process will also provide for local consultation in resource management planning. The Manual is produced in two sections:

Section A - Strategic Planning: Prescribes the requirements for strategic planning at national, forest reserve and district levels. Instruction sheets describe the procedures to be undertaken by the Forest Service in ALL high forest zone districts in conjunction with the resource owners and District Assemblies and other interest groups.

Section B - Operational Planning: Prescribes the requirements for planning of forest operations for forest reserves and TUC operations off reserve by the Forest Service in ALL high forest zone districts in order to successfully implement strategic plans.

The Manual is to be used in conjunction with other related MoPs. A complete list of MoPs is given below.

The Manual has been written to guide forest officers responsible for preparing and implementing forest resource plans but will also be of value to other interest groups outside of the Forest Service particularly the resource owners and District Assemblies.

Forest resource management planning is a core activity at the very heart of our new Forest Service, we expect that the services we provide in this regard will be of the highest standards as set down in this Manual. It is beholding on all officers to be very cognisant with the procedures laid down in this Manual: "ignorance of the law is no excuse for committing an offence."

Procedures documented in this Manual represent the best practice at the time of writing. It is important that individual Instruction Sheets are kept up to date and new Instruction Sheets added as our knowledge improves and techniques are refined.

This Manual replaces all previous guidelines on management plan preparation.

# **Forest Resource Management Planning in the HFZ**

## **MoP Section A - Strategic Planning**

### **A1. Introduction to Strategic Planning**

#### **Instruction Sheet A1.1 Overview of Strategic Planning**

## **1. Purpose of strategic planning**

1.1 The forest management planning process can be divided into strategic and operational planning. Strategic planning sets the long term goals for the management of a resource and describes the sort of changes to be enacted in order to achieve the goals.

1.2 As often said ‘any road will do if you do not know where you are going’. In order to properly plan day to day tasks and to ensure that work programmes have a sense of logic there needs to be an overall plan to direct such activities. Strategic planning sets out to answer the key questions of:

- where are we now ?
- where do we want to get to ? Or what do we want to achieve ?
- how will we get there ?
- who will benefit from resource management ?
- who will be affected or involved in the proposed activities ?

1.3 Operational planning defines work programmes to be undertaken in order to achieve the strategic objectives, especially ensuring that the resource requirements in terms of labour, transport, materials and funds are available at the right time.

1.4 Strategic and operational planning merge at some point and sometimes setting the dividing line is not clear, the important thing to remember is that strategic planning sets the longer term vision of where we wish to reach, while operational planning provides details of how this is achieved.

1.5 Strategic planning is also a mechanism for ensuring that local forest resource management is carried out in accordance with the requirements of National Forest Policy in Ghana. It will ensure that all forest resource management aims at conservation and sustainable development of the nation’s forest and wildlife resources for maintenance of environmental quality and perpetual flow of optimum benefits to all segments of society and to provide for people’s participation in forest resource management.

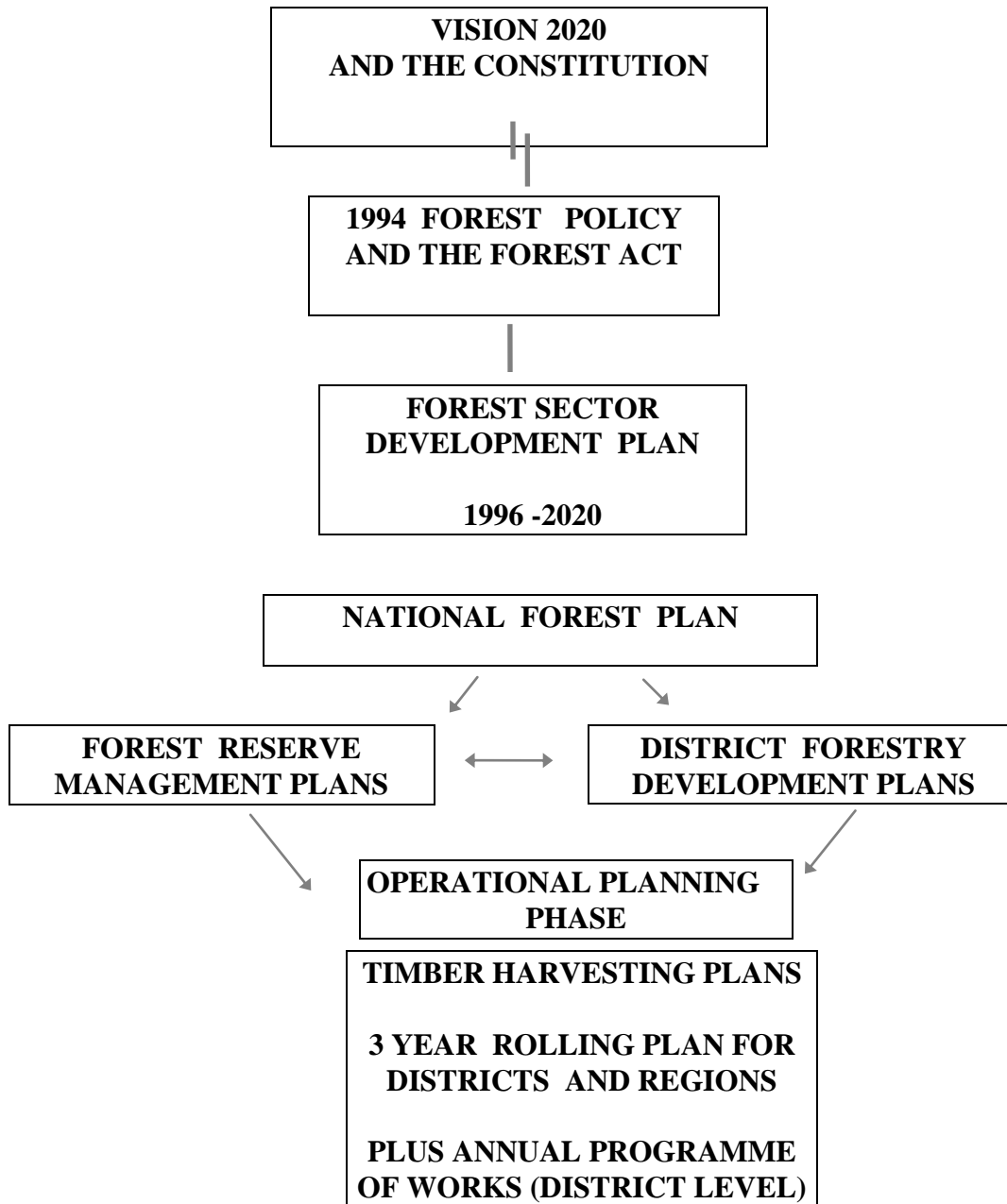
1.6 On reserve, the strategic planning process will establish objectives and standards for environmental and biological protection, for production of timber and NTFPs and for the provision of benefits to local people. The new plans will also constitute an agreement on reserve management between the resource owners, the national interest and the managers.

1.7 Off reserve the strategic planning process will ensure the controlled exploitation of the remaining timber resource and will encourage the improved management of forest resources within the context of local development aspirations.

## **2. The Strategic Planning Framework**

2.1 Strategic planning is undertaken at a number of levels which inter-link to form one strategic planning framework. The strategic planning framework is shown in Figure 1.

**Figure 1 - The Strategic Planning Framework**



## Vision 2020

2.2 The national long term development aspirations are articulated in the Ghana - Vision 2020 document (refer Box ).

### **Vision 2020 - Key national development aspirations are to see:**

- Ghana become a (high end) middle-income country by 2020
- an open and liberal market economy & accelerated economic growth
- the gap between the standards of living of rural and urban people narrowed
- a just and fair African society that provides equal opportunities for all and ensures equitable distribution of the returns from economic activity
- a decentralised, participatory and constitutional democracy
- a cultural ethos of Ghanaian values, beliefs and norms

2.3 From the perspective of forestry, Vision 2020, there are some key guidelines that need to be respected:

### **Vision 2020 - Stipulations on forestry.**

The actions that need to be undertaken in the short and medium term periods include:

- (i) the co-ordination or close integration of operations between the government ministries/ departments/ agencies for agriculture and forestry, particularly in extension work;
- (ii) the significant improvement and effective implementation of control measures;
- (iii) resource management within forest reserves, and
- (iv) the introduction of off-reserve harvesting controls.

To be effective, conservation measures must involve actively District Assemblies and communities. Operational manuals, to be prepared jointly by Ministry of Food and Agric. [MoFA] and Ministry of Lands and Forestry [MLF], are required for the advice of Districts and Communities in the management of forestry, agroforestry and rehabilitation and conservation of renewable natural resources in order to secure the nation's resource base.

## The 1994 Forest and Wildlife Policy

2.4 This policy states the overall aim of forest resource management in Ghana to be :

*‘Conservation and sustainable development of the nation’s forest and wildlife resources for maintenance of environmental quality and perpetual flow of benefits to all segments of society.’*

2.5 In order to achieve its aim the Forest Policy places particular emphasis on key concepts and strategies :-

### **1994 Forest and Wildlife Policy - Key Concepts and Strategies**

- \* sustainable production of forest produce
- \* integrated forest management systems
- \* participatory management of forest resources
- \* private sector investment in resource creation
- \* competitive procedures for allocation of forest utilisation contracts.
- \* pricing of forest products to ensure efficient resource utilisation
- \* sharing of the financial benefits of forestry to maintain resource production capacity and to benefit local communities
- \* a low volume, high value timber industry

## The Forest Sector Development Plan

2.7 This plan has been prepared by the Ministry of Lands and Forestry as a master plan for achieving sustainable utilisation and development of forest and wildlife resources, modernisation of the timber industry and the conservation of the environment and thereby ensure the realisation of the objectives of the Forest and Wildlife Policy. The elements of the Master Plan reflect the main national development principles of the Government.

2.8 The Plan sets out the present status of the forest resource, the pattern of utilisation, the present constraints facing the sector and the existing development programme being followed. It then lays out the changes that are needed in order that the Forestry and Wildlife Policy can be fulfilled.

## **Forest Sector Development Plan 1996-2020. Key Points**

In the medium term, the Master Plan has four main development programmes, the first is sustainable forest and savannah management which aims to:

- \* improve the management of existing forest resources and ensure sustainable levels of felling and extraction of timber
- \* increase public awareness and encourage involvement of individuals and communities in protection and management of forest resources

### Wildlife Sector Development Plan

2.9 The wildlife sector are also developing their own Sector Development Plan or Master Plan. The plan will seek to:-

- demonstrate the important contribution that wildlife can make to the national social and economic development goals, and its role in the achievement of Vision 2020.
- provide an analysis of the key issues in the wildlife sector
- identify necessary reforms in the wildlife sector, and define an action strategy to implement these reforms
- identify specific investment needs, and prepare the necessary documentation to facilitate investment decisions by the international donor community.

2.10 The Ghana Wildlife Department has an estate of 15 protected areas covering 12,685 km<sup>2</sup> or 5.2% of the nation and roughly half that of the forestry reserves. However those forest reserves with a significant proportion of their area under some level of permanent protection will also serve the needs of the wildlife sector in terms of fauna conservation through maintenance of habitats. In devising the protection strategies for the forest reserves, account will need to be taken of any special requirements for wildlife.

### The National Forestry Plan

2.11 The National Forest Plan is a legal requirement on the part of the Forest Service as stipulated within the new Forest Act. The Plan is prepared under the direction of the Managing Director and has to be submitted to the Minister through the Forestry Commission. The Plan is based on a distillation of the forest inventory data and other information regarding the extent, production and utilisation of the forest resource. It sets out the level of timber harvest allowed and the categories of forest recognised and presents the foundations for forest management. The Plan should be reviewed and revised when required, rather than after a specific interval.

### Forest Reserve Management Plans

2.12 The Forest Reserve Management Plans are the key strategic planning tools required by regional and district forestry staff, they provide the overall management direction for an individual forest reserve or a group of reserves combined for ease of management into the Forest Management Units (FMU). It is the preparation of these plans which is the main focus of this MoP. They set out the medium to long term planning objectives for the reserve(s).

2.13 The main purpose of the plan is to present the present state of knowledge on the extent and quality of the forest resources, its utilisation, the zoning of the forest into recognised management

categories based on defined principles and a synthesis of the ownership and legal status of the reserve.

2.14 The strategic plans will provide the reader with the overall management objectives to be followed and the state of the forest desired within a time framework of 20 years or so. The plan is prepared by the Forest Service in full collaboration with the land owners and must be endorsed by their representatives. Such plans therefore represent a statement of intent by the Forest Service in managing the resource and provide a means of judging their performance in this duty

#### District Forestry Development Plans

2.15 Following the greater responsibility of the District Assemblies for managing their own resources, it is now a Government requirement that every District Assembly should form an Environmental Committee charged with the responsibility of co-ordinating environmental developments within the district including all aspects within the forestry sector. Five year development plans are required to set out the overall direction given the present resources and the present and projected demands being made.

2.16 The DFO will be full member of the District Environmental (or Development) Committee and will have the responsibility of ensuring that all Forest Service programmes are represented in the District Forest Development Plan along with any commercial and extension activities that are relevant to the sector.

### **OPERATIONAL PLANS**

*Operational planning is the subject of MoP Section B, however for completeness, the sort of plans involved are briefly referred to below:-*

#### Forest Reserve Operational Planning Annex

2.17 This is an annex to the main forest reserve strategic plan. It is prepared soon after completion of the strategic plans and would be reviewed every five years. It is brief and focuses on the more pressing tasks to be undertaken over the following five years for each of the management zones. Whereas the management plan may have been prepared for an FMU, the operational planning annex should be written on a reserve by reserve basis.

#### Timber Utilisation Operational Plans

2.18 Operational plans for the Timber Utilisation Contract (TUC) Areas for both on and off reserve are prepared by the contracting companies and approved by the Forest Service. They set out details of the level of logging and its location over a five year period and are supported by more detailed compartment plans (on-reserve) and annual plans (off-reserve).

#### Commercial Plantation Plans

2.19 For those reserves where commercial plantation development is underway or expected to be so within the next three years, planting plans are required as the basis for the agreement issued to the investing company.

#### Three Year Rolling Plan and Annual Programme of Work

2.20 The strategic forest reserve management plans and the district level forestry development plans need to be converted into costed programmes covering the more immediate future. The work



programme is defined on a three year basis, rolled forward every year. The programme for year 1 is defined very exactly, listing all activities and a full breakdown of costs, this being the Annual Programme of Works. All responsibilities of the Forest Service emanating from the TUC Operational Plans and the plantation programmes which will require resources of staff time or operating funds must also be included within the three year rolling plans and annual programme of works. Staff are referred to MoP Section B for details.

**Manual of Procedures - Forest Resource Management in the HFZ**  
**MOP Section A - Strategic Planning**

**A2. Forest Reserve Management Plans**

**Instruction Sheet A2.1 Introduction to the Plans and their Preparation**

**1. Introduction**

1.1 This Instruction sheet provides an overview of the legal requirements of the forest reserve management plans and their structure. Later Instruction sheets in Part 2 will detail the procedures required to undertake data collection and to write the plans so that they meet the interests of the clients, the resource owners and the nation.

**2. Legal Requirements**

2.1 Preparation of forest reserve management plans is a core function of the Forest Service. All forest officers must be familiar with the legal obligations of the FS in this respect (refer Box).

**Legal Requirements for Forest Reserve Management Plans**  
**Timber Resources Management Regulations**

**Management of Lands suitable for Timber Rights**

.....the Chief Conservator of Forests (CCF) will prepare and implement a Forest Management Plan (FMP) for each forest block under his control, specifying the subdivision of forest management units (FMU) into production and protection areas, the relevant proportion of the AAC and the nature of sustainable forest management operations to be carried out therein.

Under the respective FMP, depending on the condition of the resource base in the production area, each FMU will be available for the exercise of timber rights, providing that no more than 4 timber utilisation contracts will operate therein at any one time.

**3. Key Policy Considerations**

3.1 All Forest Officers should be aware of the requirements of the Forest Policy concerning management of forest reserves. All forest reserve management plans should be in line with the objectives and strategies agreed in the Forest Policy.

3.2 The Forest Policy clarifies the specific purpose of forest management inside the forest reserves. The overriding objective of forest reserve management in the HFZ is:

*Preservation of vital soil and water resources, conservation of biological diversity & the environment & sustainable production of domestic and commercial produce.*

3.3 Under the terms of the Forest Policy the policy framework for the management of the forest reserves in the HFZ is clear and is summarised in the box.

### **Key Policy Guidance on Forest Reserve Management in the High Forest Zone**

#### **Forestry for what:**

To ensure that the biological and environmental values of the permanent forest estate are preserved and secondly to sustainably produce forest products that can contribute to domestic and commercial economies, provide funds for forest management and generate revenue for the resource owners.

#### **Forestry for who:**

For the benefit of the resource owners and in the interest of the nation. The benefits to be provided for the resource owners include forest produce for domestic use and revenue from resource utilisation as defined in the Constitution.

#### **Forestry by whom:**

The Forest Service manages the forest reserves, according to agreed objectives and standards, on behalf of its two clients; the resource owners and the national interest. The manager can engage contractors to undertake certain operations including timber harvesting.

#### **Forestry - how:**

**Integrated forest reserve management systems** that can reconcile the Protection, Production and People elements of forest reserve management in perpetuity.

3.4 Two key elements have to be taken into account during all strategic planning for forest reserves. Firstly the forest reserves in Ghana are unique in that the land in the reserves and the forests are for the most part the property of the traditional landowners. The Forest Service is mandated only to manage them for the benefit of the owners and in the interest of the nation. The forest reserve management plan represents a binding agreement between the Forest Service and the nation and the resource owners on how the reserve is to be managed.

3.5 Secondly, the forest reserves serve a multitude of interests; they maintain the environmental conditions necessary for agriculture, they sustain rural communities through provision of medicines, foods, fuelwood, soil fertility, livelihoods, building materials. In addition they supply materials for the timber and furniture industries and generate revenue for local and national development, they can also act as a carbon sink and shelter agricultural crops from drying winds. These interests can be summarised as the PROTECTION, PRODUCTION and PEOPLE interests, they need to be prioritised, reconciled and provided for in the forest reserve management plan. The Forest Policy guides us in prioritisation and reconciliation of different interests.

3.6 Our policy is to give the protective functions of the reserves priority over the productive. The productive area is the residual left over after the protective functions have been provided for.

3.7 The tangible benefits due to the resource owning communities are revenue as defined in the Constitution and free access to forest products for domestic use within the limits of sustainability.

3.8 In the past, forest reserve management often focused on timber production. In accordance with the new policy the reserves will be actively managed for protection, production and in the interest of local people on a sustainable basis. These different elements of forest management will be integrated into one forest reserve management system.

3.9 The new plans replace the old working plans which were originally devised to guide exploitation, especially timber harvesting. Also in recent years the management plans have included too many details on operations and defined programmes of work. The new plans do not include such details of operations. However there will be an operational planning annexe which does provide a priority list of those tasks to be completed over the next five years.

3.10 The life of the management plan is not defined, it will only be amended, when and if it is needed to be. But for guidance, it should be seen to be a plan designed to cover at least 20 years. The operational planning annexe would be revised every five years.

## **4. The Planning Process**

### Purpose of preparing a reserve management plan

4.1 All forest reserve management plans aim to provide strategic guidance to the resource owners and managers on :

- where we are now - the current resource situation;
- what the reserve will be managed for;
- in whose interest will it be managed;
- by who will it be managed;
- how the goals of management will be achieved.

4.2 The Forest Act requires that all forest reserve management plans shall:

- (a) describe the area, specifying boundaries, ownership of the land, and the status of forest and wildlife resources;
- (b) with a view to achieving the sustainable development of the forest resources of the area, state management objectives, identifying where appropriate management zones, including zones to be devoted to provenance or other protection;
- (c) indicate the measures to be applied for the achievement of such objectives;
- (d) specify domestic use rights established through consultations with claimants of such rights.

4.3 The Forest Act requires that every draft plan be submitted to the Forestry Commission for approval and that with the assistance of the District Assemblies every draft plan be publicised to obtain the support of the owners or users of the concerned lands and any other concerned persons.

### Overview of the Planning Process

4.4 The RFOs are required to review the status of the forest reserve plans under their supervision and sets an agreed priority with his district staff on the order of preparation or revision. The proposed programme is sent to the FMSC and the Director of Operations HQ for comment.

4.5 The RFOs should agree with the DFOs the level of support they will need from the Regional Planning Team and from FMSC and set a timetable. Responsibilities for data collection and initial drafting will be agreed at the same time.

4.6 The main activities in the planning process are summarised below and explained in later Instruction Sheets.

### **1. Formulation**

- formation of planning team
- review of current situation based on existing information
- provisional zonation
- field investigations
- provisional management planning for each zone
- compilation of a first draft management plan

### **2. Consultation**

- formal review of working draft by resource owners
- revision of the working draft
- local endorsement of the draft plan
- forward the draft plan for national review and approval

### **3. Distribution**

- publish and circulate copies of the final plan
- prepare summary pamphlet of the plan

**Manual of Procedures - Forest Resource Management in the HFZ**  
**MOP Section A - Strategic Planning**

**A2. Forest Reserve Management Plans**

**Instruction Sheet A2.2 Formation of planning teams and collation of existing information.**

**1. Introduction**

1.1 This instruction sheet describes the first three steps in the planning process:

- formation of a planning team
- collation of existing information
- field reconnaissance

**2. Formation of a planning team**

2.1 No one person can prepare a management plan, it is a team effort.

2.2 Once the RFO has initiated the process by selecting the priority reserves to be targeted over the next 12 months, the planning team needs to be formed. The team is usually led by the Deputy RFO in charge of Technical Operations who would be expected to take on the role of Regional Forestry Planning Officer, unless this task is undertaken personally by the RFO.

2.3 Team composition is flexible but will usually comprise at least:

- Deputy RFO
- the respective DFO
- Regional CFM support team
- Support staff from the FMSC
- A representative each from the landowners and the DA.
- Other representatives of local interest groups or specialists as required

Support required from the FMSC will depend to some extent on local circumstances, for instance in the transitional zone the assistance of the fire ecologists may be especially critical.

2.4 The team leader should ensure everyone in the team is clear about the objectives of the task and should agree with the team a schedule for preparation of the plan. The team leader should formally notify the District Assembly and the landowners and the Forestry Commission that plan preparation has commenced. The team leader should organise a one day training/briefing session for the team and ensure that all members have a copy of this MoP.

**3. Collation of existing information**

3.1 The strategic forest reserve plan is written in two main parts. Part 1 sets the current situation within the reserve in terms of its ownership, composition and recent management practices. Part 2 sets out the management proposals and prescriptions for the future. There is a third (brief) part dealing with implementation aspects. In order to prepare Parts 1 and 2, it is essential for the team to review all the basic information that they will need to synthesise the salient points. The table (2.2.1) below indicates some of the more important sources of information that might be utilised.

**Table 2.2.1 Information Required for Plan Preparation**

<b>Item</b>	<b>Required for</b>	<b>Available from</b>
<b>Plans</b>		
Previous management plan if ever produced	general background, change in forest cover previous management history, ownership.	RFO, DFO, FMSC, HQ
Plantation Management Plans	background on state of plantations	RFO, DFO, FMSC, HQ
Annual Programmes of Work	previous work programmes	DFO
TUC Plans	back ground on timber production area and level of harvesting	DFO, RFO
<b>Reports</b>		
TSP Inventory Reports	to provide summary of forest composition and level of production	FMSC
NTFP survey data	background on NTFP presence and possible levels of production	
Annual reports	revenue summaries, previous management, volume exploited, fire and illegal felling	DFO, RFO
Plantation Inventory Reports	composition of plantations	FMSC, DFO
LMC Reports	volume and species extracted	FMSC
<b>Registers</b>		
Compartment Register	details of previous management and summaries of harvesting	DFO
Felling register	harvesting information and previous management.	DFO
District Timber Revenue Returns	harvesting history	DFO, RFO
<b>Maps</b>		
Forest reserve boundary map Exiting Compartment Maps Progress Maps Plantation Maps Administrative boundaries Protected Areas	creation of new mapping series	DFO, RFO, FMSC, HQ, District Assembly HQ
<b>Others</b>		
Gazettment notice	description of reserve boundary	HQ

3.2 In addition, FMSC on receiving the RFOs forward programme for forest reserve planning will assist in providing the following information:-

Maps:

- a) Forest Reserve Location Map
- b) Hill Sanctuaries (derived from the Survey of Ghana maps)
- c) Protection Areas already identified (SBPAs, Swamps, Provenance Protection Areas etc.)
- d) Provisional Forest and Vegetation Types (based on canopy closure from the satellite imagery and air photography if available)
- e) Fire sensitivity maps
- f) Location of PSPs, research plots

Summaries of Data Bases

- a) Forest condition, known occurrence of protected species (extracted from FROGGIE )
- b) Genetic Heat Index

- c) TSP data - summary tables of species diameter distribution, volume, NTFPs
- d) Fire history and fire sensitivity ratings for compartments
- e) Approval Data base- listing of approved yields by compartments
- f) PSP data base - summaries of growth data from relevant PSPs.

Other

- a) Summary of relevant meteorological data
- b) Summary of soil and site investigations
- c) Relevant Wildlife Department reports on status of fauna and protection plans
- d) Relevant plans or surveys by private or governmental mining organisations.

**PLANTATION INVENTORY REPORTS**

Inventories and mapping was conducted of the 12 main blocks of plantations in the country during 1992-95. The following reports are available:

- 1. Afram Headwaters FR**
- 2. Opro River FR**
- 3. Afrensu Brohuma FR**
- 4. Jimira FR**
- 5. Yaya FR**
- 6. Tain II FR**
- 7. Bosomoa FR**
- 8. Awura FR**
- 9. Aboma FR**
- 10. Pru Shelterbelt**
- 11. Boumfum FR**
- 12. South Fomangsu FR**

Reports provide 1:10,000 compartment maps plus details of stocking, basal area, volume of all main species

**4. Field Reconnaissance**

4.1 As early as possible, the DFO and his TOs should visit the reserve to meet with the landowners and the District Assemblies and inform them of the programme. At this stage it will be useful to travel around the reserve boundary as much as possible and get an idea of the number of communities dependent on the reserve. This information will be essential in planning the completion of the socio-economic surveys.

4.2 The DFO should also make note of any major disturbances to the reserve in terms of fire, encroachment, illegal felling, that might make the existing TSP data unreliable.

4.3 The whole planning team should also make an early visit to the reserve to meet representatives of the land owners and form an initial impression of the planning arrangements necessary.



## **A2. Forest Reserve Management Plans Instruction Sheet 2.3 Provisional Zonation Maps**

### **1. Introduction**

1.1 All reserves serve important environmental functions: protection of watersheds, protection of crops from drying harmattan winds and protection of steep slopes from erosion. Most forest reserves were originally established for these and other critical functions. In recent years, biodiversity conservation has come to be seen as an important function of the forest reserves. In order to ensure that the protective functions of the reserves are adequately provided for, the Forest Department has prepared a Protection Strategy.

1.1 It will be the responsibility of FMSC to produce a provisional zonation map indicating the extent of the timber production area, all the protected areas and any areas currently out of production (convalescence).

1.2 This will be produced from an examination of satellite imagery (to indicate canopy closure) supported by topographic maps to identify those areas unsuited for logging due to excessive slope. The data bases held at FMSC will provide the basis for locating the large-grained protection zones.

1.3 Maps will be produced as a series of overlays making use of the GIS facilities. This allows for easy modification and later amendment.

### **2. Zonation - Overview**

2.1 The initial zonation of the reserve is a critical stage in the planning process. Management of timber production areas clearly will need a different management regime to those areas being managed primarily for soil and water conservation. In the past this led to the identification of working circles;

- the production working circle (or selection working circle) for timber and occasionally pole production
- the protection working circle
- the conversion working circle

2.2 The approach today is to identify a more specific range of forest management categories. During zonation each area of the reserve is assigned to a management category. Most of the new management zones fall into either protection or production, conversion is to be regarded as a category of production. The two broad categories of management are therefore:

- Protection zones
- production zones

Community rights are recognised for each of these categories and defined for each of the individual zones.

2.3 The critical point to be made is that the protection categories are regarded as the more important; essentially the production zones being defined after all the (large-grained) protection areas and culturally sensitive areas have been demarcated - see box

## **LARGE- GRAINED AND FINE-GRAINED PROTECTION**

Large-grained protection is the term used for those blocks of forest that are delineated on the forest reserve map prior to operations as requiring a specific management prescription.

The protection categories can be grouped into:-

### Areas protected for Environmental Stability

Hill and Swamp Sanctuaries  
Shelterbelts  
Fire Protection Blocks

### Areas required for preservation of biodiversity

Special Biological Protection areas  
Provenance Protection Areas

### Culturally sensitive areas

Cultural sites - local significance  
- national significance

Fine Grained Protection is protection at the level of the compartment or individual trees or small clumps, defined at the time of the stock surveys and prior to timber harvesting.

Restriction on harvesting applies where :

Land is locally steep >20%  
Close to watercourse (25-50 m) depending on stream

size

Permanently wet areas (not identified as Swamp Sanctuaries under large-grained protection mapping)  
Protected species  
Very open patches of forest  
(canopy condition classes 5&6)

## **CONDITION CLASSES**

### **AS USED TO DESCRIBE THE STATE OF RESERVES**

- |                                   |   |
|-----------------------------------|---|
| 1 . EXCELLENT:                    | Few signs of disturbance                    |
| 2. GOOD :                         | Disturbance less than 10%.                  |
| 3. SLIGHTLY DEGRADED:             | Obviously disturbed but patchy              |
| 4. MOSTLY DEGRADED:               | Patchy, but degraded forest<br>predominant. |
| 5. VERY POOR :                    | Canopy mostly broken (75% +)                |
| 6. NO SIGNIFICANT FOREST<br>LEFT: | Scattered trees remaining only.             |

### 3. Zonation for Protection

#### Introduction

3.1 The protection categories are defined by the Forest Protection Strategy<sup>1</sup> which lists the categories described in Table 2.3.2. The area of Hill Sanctuary and the larger swamps will be taken from the contoured (1:50,000 scale) Survey of Ghana maps. The hill areas should be accurately defined and there should be no need to amend the indicated boundaries. The areas of swamp may however be subject to some amendment following ground inspection and will be subject to fine-grained protection (refer Box ).

3.2 The other biodiversity protection categories will be defined by the Botany Unit of FMSC and are based on ground surveys already undertaken. Some modification to the boundaries might be necessary following reconnaissance at the time of preparation of the plan. The boundaries for culturally sensitive areas will be greatly affected by local representation and knowledge and only national archaeological sites are likely to be known prior to discussions with the communities. Any specific areas required as Fauna Protection Areas will be defined by the Wildlife Department and mapped by FMSC. Protection of fauna will benefit from the maintenance of the Hill Sanctuaries and the SBPAs and it is not expected that the area required to be allocated especially for fauna protection will be extensive. It might however be necessary in a few localities to maintain migratory corridors.

3.3 The semi-protected zones that will be required to limit potential damage from fire (the fire buffer zones and shelterbelts) will also be mapped by FMSC as part of Part 1 preparation.

#### Details of the Protection Zones

3.4 *Hill Sanctuaries:* All land over 30% slope will automatically be defined as Hill Sanctuaries. All such land can not be logged without causing an unnecessarily amount of site deterioration. The identification of such areas will be carried out by FMSC making use of the Survey of Ghana 1:50,000 sheets. Areas where the number of 50 feet (16 m) contours exceed 5 per 5 mm indicate that the slope is in excess of 30%. The use of digital mapping facilities should however enable the hills to be accurately defined as an output from the GIS.

3.5 After the formation of compartments, there will inevitably be some lying partially within the hill zone and partially within another protection or productive zone. In such circumstances, compartments should be subdivided into subcompartments and numbered with letters i.e. 32 a, 32 b etc. If more than 65% of the compartment area is taken up with Hill Sanctuary, then the whole compartment should be so categorised.

3.6 *Swamp Sanctuaries:* Areas dominated by perennial swamps are not suitable for logging and should be excluded from timber production. Larger areas will have been identified during initial mapping of the reserve by FMSC, the smaller areas will be later defined as a part of fine grain protection at the time the compartment plan is prepared.

3.7 *Provenance Protection Areas:* In order to ensure that an adequate genetic base is retained for the over-logged scarlet species, the conservation policy allows for the retention of 5% of the flat land area of the Moist Semi-deciduous, Dry Semi-deciduous and the Moist Evergreen forest within those reserves with forest still in good condition and providing a good breeding population. The location of these areas will be defined by the Botany Unit of FMSC either on a map or by providing the relevant compartment numbers.

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<sup>1</sup> Forest Protection in Ghana. W.Hawthorne, A.Juam Musah, FMSC 1993

3.8 *(Ghana) Special Biological Protected Areas: (SBPAs or GSPBAs).* These are areas which should be provided with full protection. They are areas where the forest has been identified to have a high Genetic Heat Index (GHI) and are intended to provide nature sanctuaries for forest with a large number of rare species or representing an unusual forest community. These areas attract wide scientific interest and will be registered with the international community.

3.9 Details of the location of these sites will be provided by FMSC and the field staff will be required to ensure that all such areas are properly demarcated and protected.

3.10 *Research Areas:* Specific sites will have been identified and put under investigation by Ghanaian and international research organisation. The responsibility for mapping and demarcating the sites lies with the concerned research organisation who should directly inform the RFO/DFO of the need to protect the sites. The permitted treatment of the sites will be defined by the concerned organisations. It is obviously essential that this information is properly recorded as an annex to the management plan.

3.12 FMSC will provide maps of all Permanent Sample Plots (PSPs) and inform the DFOs of what restrictions apply to a particular set of PSPs. In all cases, it will be necessary to measure the plots before and after harvesting, and therefore district staff must inform the Mensuration Unit of FMSC in good time before harvesting is due to take place in a compartment known to have a PSP.

3.12 In addition to the zones identified to ensure maintenance of the floral diversity of the forest, other protected areas are required as part of the programme to minimise the fire hazard.

3.13 *Fire Protection Blocks:* Fire is a major factor in the destruction of the forest. In the Moist semi-deciduous zone it has been the direct cause of 30% loss of the forest in the 1980s. Logging in the drier areas has a direct link to increasing the incidence of fire. Opening the canopy in such areas encourages the infestation of grasses which provide a ready fuel in the dry season. In such areas logging should be very restricted. As a means of decreasing the spread of fire, areas of closed canopy forest which lie to the windward side of the fire susceptible areas should be retained as a barrier. Such blocks will be identified by the Ecology Unit of FMSC and the DFOs will be provided with details of their location under the Part 1 process. The Ecology Unit has evolved a system of calculating the fire risk to compartments within the Dry and Moist semi-deciduous zones (refer Box) and will provide the DFO's maps indicating the high risk area.

3.14 *Shelterbelts:* During the original reservation process, attention was paid to the preservation of shelterbelts - long, narrow belts of forest - as a means of reducing the drying effects of the drying winds on cocoa production. Such areas are still important for the maintenance of a forest environment, however due to their long perimeter in relation to their total area, such shelterbelts are particularly sensitive to the effects of fire. Accordingly such areas should be protected from logging.

3.15 The location of such shelterbelts will be obvious to all DFOs. All narrow belts of forest - only one compartment wide situated within fire-risk areas should be retained as unlogged areas. The advice of the Ecology Unit of FMSC can be sought if the district staff are not sure of the location of such areas.

## FIRE RISK ASSESSMENT

The danger of fire in the Dry and Moist semi-deciduous zones is linked to the following factors:-

- Vegetation** - Density of canopy  
- ground flora
- Treatment** - recent fire history  
- intensity and timing of last logging
- Position** -aspect  
-distance to rocky outcrops  
- distance to plantations and open areas
- Human Activity** - accessibility of area  
- distance to settlement
- Infrastructure** - fire fighting crews and equipment  
- access
- Current Weather** -humidity, weather , rainfall

A scoring system has been developed to weight each group of compartments according to its potential fire risk.

3.16 As part of the fire control planning process, values can be assigned to all the management zones that have been defined within the reserve. Such values (scored on a scale of 1-5) are an indication of the value at risk in terms of resource value. Areas where there are life and property at risk, for example locations close to villages, cultural sites and tourism development should be afforded the highest protection with a score of 5. Areas destined for conversion with no forest resources would be given the lowest score of 1. The FMSC will be issuing separate guidelines on these aspects.

**Table 2.3.1 Indicative Value Scores for Fire Protection**

Score	Fire Protection Area
1	Areas demarcated for conversion
2	Young plantations and convalescence areas
3	Timber Production Areas, mature plantations
4	Important conservation areas -SPBAs, FPAs
5	Locations close to settlement

3.17 *Convalescence Areas*: Under semi-protection are those areas which would otherwise be regarded as timber production areas, except that with their low basal area (taken as 15 m<sup>2</sup>/ha or less) and the poor stocking of exploitable trees, they can not be included within the current 40 year rotation and are therefore being left to regenerate.

3.18 These areas will be roughly defined by FMSC from satellite imagery (and air photography when available) and in part supported by the results of the national inventory. Such areas will need to be examined at the time of Part 1 preparation and the maps provided by FMSC should only be taken as indicative.

## 4. Zonation for Production

### Introduction

4.1 The main production areas will consist of the timber production area, the existing plantations and selected areas especially identified for NTFP harvesting. The boundaries of the latter will be completely dependent on local knowledge and will not be defined by FMSC. The existing areas of plantation should be accurately known from the results of existing surveys.

4.2 The extent of the timber production area is the remaining forest after all the other zones have been identified.

4.3 *NTFP Production Areas:* Non-timber forest products can be collected in most zones of the forest to varying degrees. However, there are special areas known to the local community that are important for traditional products. The harvesting of these products might be disrupted by standard logging and where this is the case, then NTFP Production areas should be defined and mapped as part of the consultation process.

4.4 *Plantation Areas:* All major areas of plantations have been mapped and inventoried as part of the national assessment of plantations carried out in 1992-3. Maps defining the boundaries of the existing compartments were prepared for the 12 key reserves (refer Instruction Sheet 2.2) which have the predominant area of plantations. The inventory excluded small pockets of plantations and those that had failed, but it does provide 1:10,000 scale maps of each compartment surveyed showing the location of degraded or failed plantations.

4.5 District staff should therefore be able to define the extent of the plantations reasonably accurately. Additional maps will also be provided by FMSC incorporating the existing inventory maps but modified with satellite imagery where possible.

4.6 *Timber Production Areas:* The remaining areas will represent the timber production areas to be managed sustainably under a 40 year cutting cycle with defined diameter limits for each commercial species (details in MoP Section D).

**Table 2.3. 2 Forest Management Categories to be used for Forest Reserve Zonation**

<b>Area Category</b>	<b>Characteristics</b>	<b>Objectives of Management</b>	<b>Mean of Identification</b>
<b>PROTECTION</b>			
<b>Hill Sanctuaries</b>	All land within the reserve where the slope is $\geq 30\%$ .	To provide environmental protection of steep slopes that would be subject to erosion if logged. To ensure maintenance of the watersheds. To also provide widescale protection for undefined flora and fauna resources.	Identified by FMSC using the Survey of Ghana 1:50,000 scale contoured maps. All areas above the slope criterion are included. Compartments with at least 65% steep land are designated as protected.
<b>Swamp Sanctuaries</b>	Perennial wet areas	Maintenance of water sources, flora and fauna preservation	Coarse grained areas identified by FMSC from base maps. Smaller areas identified as part of the fine-grain protection activities undertaken during stock survey
<b>Provenance Protection Area</b>	Area with high populations of key economic species.	Act as gene banks for exploited species	Areas initially identified by the Botanical Unit of FMSC. Additional areas may be identified in the course of Part 1 preparation.
<b>Special Biological Protection Area</b>	Areas of high plant GHI or presence of rare fauna species.	Full protection of areas of high biodiversity and therefore of both national and international value.	Botanical surveys undertaken by FMSC.
<b>Cultural sites</b>	Culturally important areas identified during the settlement procedure or in special cases areas identified since and archaeological sites.	Preservation of the sites of traditional or historic value for the benefit of the local community and the nation.. Promotion of tourism where acceptable.	As demarcated on existing base maps and reinforced by local knowledge during community discussions.
<b>Research Area</b>	Research Working Circles	Provide scientific and technical knowledge of use both by the Forest Service and the wider scientific community	Demarcated and mapped by the research organisation. Information to be combined by FMSC
<b>Fauna Protection Areas</b>	Areas identified by the Wildlife Department as being critical to the preservation of the habitat required for rare or important species.	Maintenance of natural habitat for critical species.	

**Table 2.3. 2 (continued) Forest Management Categories to be used for Forest Reserve Zonation**

<b>Area Category</b>	<b>Characteristics</b>	<b>Objectives of Management</b>	<b>Mean of Identification</b>
<b>SEMI-PROTECTION</b>			
<b>Fire Buffer Zones</b>	Intact areas surrounding 'valuable' forest in fire prone areas	Provide a buffer from fire from outside the reserve reaching valuable forest considered to be fire-susceptible.	Areas to be recommended by Ecology Unit , FMSC and modified as appropriate following field inspections
<b>Shelterbelts</b>	Areas with a large boundary to area ratio which are therefore particularly vulnerable.	Maintenance of forest cover and hence restrict spread of fire and provide continuing shelter for agricultural crops	Original areas demarcated as shelterbelts for protection from desiccating winds. Located from existing forest reserve maps.
<b>Convalescence forest</b>	Forest which due to either the effects of past logging or fire is now at stage where it can not be logged in the present management cycle. A guide of 15m <sup>2</sup> basal area or less is indicative in this case	Area left to regenerate until commercially sized timber available for felling	Satellite imagery or air photography, supported by ground reconnaissance
<b>PRODUCTION</b>			
<b>NTFP Production Areas</b>	Areas identified by rights holders as important NTFP collecting grounds which do not fall into the protection designations.	Production of NTFPs for local and commercial use	NTFP survey (FMSC) but extended and modified by local knowledge
<b>Timber Production Areas</b>	Healthy productive forest. >15m <sup>2</sup> /ha. basal area which does not fall into protection, research or NTFP area designation.	Sustainable timber production	Residual areas on the zonation maps after the other zones have been identified
<b>Plantation area</b>	Existing stands of artificially regenerated areas	Timber , pole and fuelwood production	Satellite imagery supported by ground surveys
<b>OTHERS</b>			
<b>Conversion</b>	Areas where forest cover and regeneration is minimal and might be suitable for conversion to plantations. A guide of 5m <sup>2</sup> basal area or less would suggest this condition.	To act as a land bank for possible conversion to forest plantations if site conditions are suitable.	Satellite imagery, forest inventory data and ground reconnaissance.
<b>Enclosed Farms</b>	Farmland which has been legally recognised.	Legitimate agricultural practices which do not lead to further forest damage	Existing forest boundary maps.



## THE STAR SYSTEM AND GENETIC HEAT INDEX

Tree species have been categorised on the basis of their scarcity and the degree of exploitation. The different categories are referred to as various star colours, i.e.

<b>BLACK</b>	Rare internationally and uncommon in Ghana, highly protected
<b>GOLD</b>	Fairly rare both internationally and/or in Ghana, high protection
<b>BLUE</b>	Widespread internationally but rare in Ghana or visa versa. Protection required
<b>SCARLET</b>	Common, but under high pressure from over-exploitation. Strict controls on annual allowable cut if they are to remain commercially viable. Level of cut > 200% of AAC
<b>RED</b>	Common, but tend to be over-exploited, restriction needed Level of cut 100-200% of AAC
<b>PINK</b>	Utilisable but not as popular to the trade, present cut below AAC
<b>GREEN</b>	No particular conservation concern

**GENETIC HEAT INDEX (GHI) :** Used to provide a measure of the genetic value of forest in terms of the composition of tree species only. It is a weighted index derived from :-

$$\text{GHI} = \frac{(\text{BK} \times 27) + (\text{GD} \times 9) + (\text{BU} \times 3) + (\text{RD} \times 1) \times 100}{\text{BK} + \text{GD} + \text{BU} + \text{RD} + \text{GN}}$$

where BK= no. of black species, GD= gold species, BU = blue, RD = red and GN = green.

Values range from 0 - 533

**ECONOMIC INDEX (EI):** Similar to the GHI but gives an indication of the number of economic species, weights are the same as for the GHI.

Values range from 0 - 120

**Manual of Procedures - Forest Resource Management in the HFZ**  
**MOP Section A - Strategic Planning**

**A2. Forest Reserve Management Plans**

**Instruction Sheet A2.4 Provisional Setting of objectives for beneficiary rights**

**Introduction**

1.1 The resource owning communities have a statutory right to benefit for the management of the their forest reserves. These rights are guaranteed under the 1994 Forest and Wildlife Policy, the 1998 forest Act and the 1992 Constitution.

1.2 All forest reserve management plans must clearly identify the local beneficiaries of reserve management and the benefits they will receive from forest reserve management. This Instruction Sheet prescribes procedures for identifying the beneficiaries and defining provisional beneficiary objectives. Both the beneficiaries and the objectives will be finalised after the field investigations and formal consultations.

1.3 The Forest Department is incorporating a collaborative forest management approach into all aspects of forest reserve management in order to ensure local people can benefit for reserve management and can contribute to improved forest reserve management. Equitable sharing of benefits from reserve management is a key element of collaboration. Refer to the Guidelines on Collaboration in Forest Reserve Management for details.

**2. Provisional Identification the Beneficiaries of Forest Reserve Management**

2.1 From previous records the ownership of the reserve should be determined and later verified in consultation with traditional and local government authorities.

2.2 There are generally three types of owners of forest reserves:-

- Stool(s) or skin(s)
- The Government
- Alienation Holders

2.3 A provisional list of the communities that fall under the jurisdiction of the various types listed above should be compiled during the reconnaissance visits (Instruction Sheet 2.5).

2.4 According to the 1992 Constitution, the revenue from stool land will be shared between the Traditional Authority, the Stool and the District Assembly. The names of the concerned District Assemblies and the Traditional Authorities should also be recorded.

**INFORMATION BOX: BENEFITS TO LOCAL PEOPLE**

The forest reserves have remained the property of their traditional owners, in addition to the indirect benefits associated with environmental protection, **the direct benefits** the owners should receive from forest reserve management are:

- Revenue from natural forest management and plantation development on their land in accordance with the Constitution
- Secure access to forest products for domestic use free of charge and within the limits of sustainability

These benefits of forest reserve management are rights deriving from ownership and are not contingent on a further economic contribution to day to day forest management. The resource owning communities also have a right to be consulted during strategic planning.

**Who are the local people ?**

Primarily the communities that own the land; all the communities that make up the land-owning stool will be identified in the management plan. In addition it is expected that settler communities accepted onto the land by the landowners and living close to the reserve will also be considered beneficiary communities.

It is also envisaged that forest reserve management will become more efficient once collaboration is built into strategic planning and forest operations. Some communities have a comparative advantage in NTFP management, rehabilitation of degraded areas and fire prevention. Where it is agreed that a particular community is best placed to undertake certain operations a formal working partnership can be entered into.

**3. Beneficiary Objectives: the right to revenue**

3.1 The resource owners have a statutory right to receive all the revenue from forest reserve management, less any revenue retained by the Forest Service as management fees for operations it is agreed that the Forest Service will carry out.

3.2 The right of the beneficiaries to receive revenue from the forest reserve management should be clearly stated as an objective of management.

3.3 During management planning the potential sources of revenue will be identified.

<b>Beneficiary Objective</b>	<b>Characteristics</b>	<b>Objective of Management</b>	<b>Means of Identification</b>
Revenue from forest reserve management	Applies to all production and protection zones	To ensure a fair share of the revenue is disbursed to the landowners in accordance with the provisions of the Constitution and forest laws in a timely fashion	Identify the resource owners from the previous management plan and the gazette.

**4. Beneficiary Objectives: The Rights to Forest Produce for Domestic Use**

4.1 Local people have a statutory right to collect forest produce from the forest reserve to help meet their requirements for forest produce for domestic use.

4.2 The management plan should clearly state that as an objective, the reserve will be managed to provide forest produce to meet domestic needs.

4.3 During management planning the type of forest produce to be provided for domestic use should be agreed.

<b>Beneficiary Right</b>	<b>Characteristics</b>	<b>Objective of Management</b>	<b>Means of Identification</b>
Access to forest produce for domestic use	Applies to all production and protection zones except SBPAs and Fauna Protection Areas. Restrictions on the method of collection will apply to some of the management zones	To ensure local people have access to forest produce from the forest reserve for domestic use within the limits of sustainability	Field investigations to identify all communities that should use the rights; plus review of customary rights.

4.4 The communities also have the right to be consulted during reserve planning and in the formulation of timber harvesting agreements, and may wish to establish specific operating restrictions to be agreed by all parties.

4.5 The communities may wish to apply their own traditional controls on the method of collection of NTFPs - restriction on the number of pestles per family/year, hunting restricted to set months etc. As much as possible these traditions should be supported and incorporated within the agreed management prescriptions for the zones. Reference should be made to the Guidelines on NTFP management to be issued by the Community Forestry Management Unit of FMSC.

4.6 Specific Timber Operating Specifications may apply to timber contracts issued within the reserves to take account of any local requirements and restrictions that need to be adhered to in order to protect the environment or to protect community rights and traditions from infringement by would-be contractors. (This is discussed in MoP C)

## **5 . Additional Beneficiary Rights**

5.1 Any additional beneficiary rights the local people may have been granted at the time of reservation which are to be maintained or any new rights should be recorded in the objectives of management.

5.2 Examples of the additional beneficiary rights may include right to employment on plantation development programmes and rights of access to fetish sites and intellectual property rights.

# Manual of Procedures - Forest Resource Management in the HFZ

## MOP Section A - Strategic Planning

### A 2. Forest Reserve Management Plans

#### Instruction Sheet A2.5 Supportive Field Investigations

#### 1. Introduction

1.1 This instruction sheet provides guidance on the type of field investigations that will be required in order to complete Part 1 of the management plan and by inference Part 2. The amount of field work required will vary widely, depending on the number of communities dependent on the reserve and the complexity of the area with respect to different potential management zones. In addition, the amount of disturbance there has been since the last inventory will dictate the amount of re-assessment there will need to be.

1.2 The types of survey that will be required:-

- socio-economic surveys of forest-user groups
- reconnaissance of forest types and comparison to the draft Forest Classification Map
- confirmation of the extent of convalescence areas and suitability for regeneration
- state of external and internal boundaries
- check on the condition of plantations compared to compartment records and maps

1.3 For those reserves where the earlier inventories were insufficient to provide an adequate assessment of the forest, or there has clearly been major changes, then more intensive sampling might be necessary than can be provided by reconnaissance surveys.

#### 2. Socio-economic Investigations

##### Purpose of the Surveys

2.1 The socio-economic investigations aim to:-

- Identify those communities that will enjoy domestic use rights
- Understand the socio-economic context of reserve management
- Ensure all communities around the reserve are aware of the planning process and are able to participate fully.
- Explore the potential for local collaboration in management.

##### Team Composition

2.2 Teams of three are recommended able to operate independently. It is expected that local contracts will be given for this work as it will require intensive field work and would be outside the normal operational functions of the Forest Service. It is expected that following training from the FMSC, contracts can be given to a local field teams for this work. Redeployed extension agents living in the area or local unemployed graduates can be effectively trained to carry out these tasks in their own communities.

2.3 The team will be under the direction of the Regional Forest Planning Office and more directly the DFO who would ensure that they are familiar with the reserve and the communities.

## Methodology

2.4 As far as possible, participatory approaches will be used to help the planning team gain an understanding of the local socio-economic situation and to ensure local communities are involved in the planning process. General guidance on survey technology can be found in the Guidelines of Collaboration in forest Reserve Management prepared by the FMSC. Based on the findings of the reconnaissance survey, the FMSC will assist in the design of surveys for a particular reserve and provide training for local field teams.

2.5 The local field teams will use participatory tools to ensure that all the communities that live around the reserve are contacted and all the key interest groups concerned with the management, protection and use of the resource are identified and their particular needs, perceptions and ideas understood.

2.6 The surveys will be designed to provide information on the following aspects:-

- social and economic structure of the communities
- perceived land and forest rights and relationship with other communities
- potential for collaboration in forest management operations
- dependence on the forest for products and services.
- the variety and scale of importance of timber and NTFPs
- indigenous knowledge of local ecology that may help to develop prescriptions for forest reserve management
- any particular locations of importance for harvesting such materials
- experience of improving the propagation or directly improving the production of NTFPs
- calendar for harvesting and marketing
- the marketing chain and possibilities for local value added processing
- relationship with the former Forest Department and contractors
- issues likely to be important in defining Social Responsibility Agreements with contractors
- experiences of forest fire, location and reasons for regular burns
- interest in tree planting and providing contract labour

## Reporting and Analysis

2.7 The reporting format will be defined by FMSC. As much of the basic data analysis will be done by the teams themselves as part of the contract but inevitably some of this responsibility will fall on the Regional Planning Office with support from FMSC.

2.8 The reports will be prepared on a reserve by reserve basis and will need to be supported by a large scale map (1:25,000 approx.) to indicate the location of all communities interviewed, their perceived area of interest, location of important NTFP harvesting sites and culturally significant areas which should be removed from the timber production areas

## **COLLABORATION IN FOREST RESERVE MANAGEMENT**

**Collaboration is a working partnership between the local people and the Forest Service to ensure that a management of all forest resources is equitable and more efficient.**

**In order to ensure forest reserve management is equitable, the management plan will clearly state the benefits the local people have a right to receive from the management of their resource.**

**Many communities living close to the reserve will also have a comparative advantage in carrying out some of the prescriptions for management of production and protection zones. Communities may be able to collaborate in:**

- **establishment of plantations in conversion zones**
- **rehabilitation through enrichment planting in convalescence zones**
- **establishment of fire breaks**
- **cultivation of NTFPS**
- **boundary maintenance**
- **research programmes**

**During the socio-economic surveys the potential for collaboration should be explored. At a later stage agreements can be drawn up to guide the implementation of collaborative management programmes. The agreements will clearly specify the objectives of the programme, activities, resources and respective roles and responsibilities.**

**The practice of requesting some communities to freely contribute their labour in order to obtain access to the reserve to exercise their statutory right to collect NTFPs will cease.**

### **3. Reconnaissance of the state of the high forest**

#### Forest Classification

3.1 On receipt of the Provisional Forest Classification Map from FMSC, the DFO should organise a field check to ascertain if the categories would appear to be correct making use of existing access tracks. In some reserves, access might be such that one or several survey lines have to be cut. They should be aligned to cross a range of the identified forest types. For this exercise the DFO might need to obtain an enlargement of the forest classification map from FMSC. The map provided should be overlain on the Survey of Ghana contoured map to assist location in the forest. The teams will need to select easily identifiable points for the start of the transect and carefully scaling off the distance to walk before meeting an assumed change in forest classification.

3.2 It is hoped that more use can be made of a Global Positioning System (GPS) receiver for this type of investigation since it allows the teams to accurately locate their position on a map without the need for surveying.

3.3 The reconnaissance should be confirming that the condition classes indicted in FROGGIE are correct, that the TSP summaries of basal area are acceptable for the areas visited and that the break in slope for the start of the Hill Sanctuaries appears to have been properly located. In addition the location of the convalescence zone should be checked and confirmation made that the level of regeneration is adequate for the area to be retained for re-establishment under natural regeneration. The guide of  $5\text{m}^2$  per ha for the basal area for defining possible conversion areas - is just that, a guide. The amount of regeneration needs to be examined and an estimate made of the likely effects of complete protection, if there are adequate signs that the site might recover, then it should be left under convalescence. The status of a particular piece of land can always be reviewed and down-graded for potential conversion to plantations at a future date.

### CONVALESCENCE AND CONVERSION AREAS

Areas where the basal area is consistently below  **$15\text{m}^2/\text{ha}$**  should be considered for convalescence and taken out of the present series of coupes. Such areas may need **active** assistance through intensive fire control and enrichment planting where regeneration is inadequate.

Where elephant grass or *Chromolaena* is common then attention to fire control and enrichment planting will be essential.

For those areas where the basal area is consistently below  **$5\text{m}^2/\text{ha}$**  may be considered as possible conversion areas (i.e. plantation development areas). But first there needs to be an examination of the level of natural regeneration through regeneration counts. If there are good signs of natural regeneration taking place - then the area should be retained for convalescence. The chances of good regeneration will be improved by adequate protection.

3.4 Land that is recognised as belonging to the conversion category, may in fact not be suited to plantation development either because of undesirable site factors - shallow soil, low base exchange; or indeed from a marketing point of view. i.e. poor access, distance from processing units etc. The use of such land would need to be reviewed. Assistance will be provided by the MoP A on Plantation Planning in this respect.

#### Boundaries

3.5 During this reconnaissance stage the field staff should be examining the state of the external boundaries of the reserve including the number of remaining pillars. Maintenance of clear boundaries is a first step in forest protection. Encroachment and the spread of fire will be a natural consequence for neglecting this task. At the same time internal boundaries - compartment boundaries, fire lines etc. should be examined along with the state of roads and bridges.

3.6 Details of the work needed to put boundaries and roads into order is part of operational planning, but there may be strategic decisions to be taken; for example, a reserve which is subject to



constant encroachment and/or fire on one perimeter may need a specific long term strategy (development of buffer zones, improved community land management ) to address the problem.

### Plantations

3.7 The extent of existing plantations are not always well known, though the recent national inventory has provided detailed compartment maps for those areas sampled. The DFO will be provided with copies of these maps modified where possible by recent satellite imagery. As part of the preparatory phase for the management plan preparation, these base maps should be checked. As part of the exercise, the field staff should check the status of the compartment registers and see if they provide an up to date account of the operations carried out and the state of the present crop. Observations should be made on the crop - whether it has failed or is potentially productive and the approximate mean top height and its stocking. Note should also be made whether there would appear to be any major changes since the time of the inventory, for example logging - or an extensive fire.

3.8 At this stage, a full plantation inventory is not needed, but a good estimate of the condition of the resource is required. For small plantation areas, the DFO might indeed consider putting in temporary sample plots in accordance with the procedures in instruction sheet A2 of the Plantations MoP.

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**MOP Section A - Strategic Planning**

**A 2. Forest Reserve Management Plans**  
**Instruction Sheet A2.6 Provisional management planning for protection zones**

Management planning: an overview

For each management zone that has been identified long term management planning can now begin. During management planning we are trying to prepare four things:

- Measurable Objectives:** For each zone a measurable objective is prepared to ensure progress and performance can be monitored. The objective should cover quality, quantity and time where applicable.
- Management Regimes:** The regime stipulates the general method of treatment for this management zone. The regime is the same across the high forest zone and is non-negotiable. In particular the regime stipulates whether or not logging is permitted.
- Management Prescriptions:** The prescriptions recommend in more detail the silvicultural and other operations required in this zone to achieve the objective. The prescriptions are based on an understanding of the local situation and can include suggestions on local collaboration in operations. Reference must be made to specific MoPs.
- Rights and Responsibilities:** Specify who has rights in this management zone and who has responsibilities

**1. Introduction**

1.1 This Instruction Sheet deals with the management planning relevant to the protection zones. - both those under full protection and those regarded as being semi-protected. It defines the management regimes that are appropriate to each zone. These have national relevance and therefore the main aspects of the regimes are not open to negotiation. Minor modifications to some of the fringe aspects of the regimes may be possible and these are indicated in the instructions.

1.2 The other components namely the measurable objectives, management prescriptions and rights and responsibilities will be affected by local conditions. Guidance is provided on how to complete these sections.

**Protected Areas**

**2. Hill Sanctuary**

<b>Area Category</b>	<b>Characteristics</b>	<b>Objectives of Management</b>
Hill Sanctuaries	All land within the reserve where the slope is $\geq 30\%$ .	To provide environmental protection of steep slopes that would be subject to erosion if logged. To ensure maintenance of the watersheds. Additionally provides an extensive area of protection for undefined species of both flora and fauna

2.1 *Measurable Objective:* The area of the Hill Sanctuaries will be defined and should become practice immediately after the commencement of plan implementation. The objectives should therefore define that the total area of.....ha as identified on the base maps will be retained in this zone, and that the area will not be allowed to diminish during the management of the reserve. Furthermore, the quality of the forest ( in terms of canopy closure or forest condition) will not be allowed to deteriorate, and the construction of any new access tracks will be prevented. Additional isolated areas of Hill Sanctuary will be defined as part of fine grained protection mapping.

2.2 An important objective of the Hill Sanctuaries is the maintenance of water supplies in terms of quality (silt-levels) and quantity. For those reserves where this function is seen as critical, then regular assessments should be implemented with the assistance of the water authorities.

2.3 *Management Regime:*

- No logging allowed throughout this zone.
- NTFPs can be collected following general Forest Service and Wildlife Department Guidelines- providing this does not entail either:-
  - tree felling
  - construction of tracks for extraction

*Local Modifications* - Communities should be encouraged to define the scale and type of NTFPs to be collected in these areas and define any appropriate restrictions in order to prevent overcutting by a few individuals

2.4 *Management Prescriptions:*

- All compartments with more than 65% of their area falling in this zone are to be managed in accordance with the approved regime. Otherwise, the compartment may be subdivided and managed separately.
- No trees to be felled, but the collection of dead, fallen wood for local fuel requirements is permissible.
- All other harvesting restricted to NTFPs
- Any site specific restrictions on hunting to be prescribed by the Wildlife Department and negotiated with the land owners during the preparation phase.
- Fire breaks of minimum 3 m and preferably 5 m to be established and maintained where this zone borders with convalescence areas, conversion areas or farms in all Moist Semi-deciduous and Dry Semi-deciduous reserves, plus other areas rated as having a high fire risk.

2.5 *Rights and Responsibilities:* The Forest Service has the responsibility for ensuring that no timber concessions infringe on to this zone and for monitoring their activities in the area where Hill Sanctuaries adjoin timber production areas. The Forest Service also has the responsibility for monitoring and reporting on the quality of forest management with respect to this and all other zones. The community and the Forest Service have joint responsibility for ensuring that fire is not allowed to enter the sanctuaries.

2.6 The communities have the right to collect fuelwood from dead trees for personal consumption and for the collection of NTFPS in accordance with any self-imposed restrictions and in such a manner that the state of the forest is not damaged. They are allowed free access at all times.

2.7 The Forest Service has the right to warn, restrain or prosecute anyone who infringes the forest laws and wilfully damages the forest in this zone.

### 3. Swamp Sanctuaries

Area Category	Characteristics	Objectives of Management
Swamp sanctuaries	Perennial wet areas	Maintenance of water sources, flora and fauna preservation

3.1 *Measurable Objective:* The area of Swamp will be defined through large-grained protection mapping coupled with fine-grained protection mapping during stock surveying. The larger areas of permanent swamp will therefore be clearly defined at the time the plan is under initial preparation. The objectives should therefore state that the total area of.....ha as defined from the base maps will be retained in this zone and the area will not be allowed to be disturbed by timber operators. Furthermore, the area within this zone will for most reserves increase as the smaller swamp areas are identified at the time of compartment inspection.

3.2 *Management Regime:* No logging allowed throughout this zone.  
 The collection of NTFPs prohibited or severely restricted  
 Hunting and the collection of fauna restricted

*Local Modifications* -Large swamps may be a traditional source of reeds, fish etc. Agreements should be made on the level of access to these areas and the controls to be imposed.

3.3 *Management Prescriptions:*

- All compartments with more than 65% of its area falling into this zone to be managed in accordance with the approved regime. Otherwise the compartment can be subdivided and managed separately.
- No timber harvesting to be allowed
- No construction of tracks
- No collection of NTFPs except for those covered under local agreements made between the Forest Service and the land owners at the time of the plan preparation.

3.4 *Rights and Responsibilities:* The Forest Service has the responsibility for ensuring that no timber concessions infringe on to this zone and for monitoring of their activities in the area where Swamp Sanctuaries adjoin timber production areas. The Forest Service also has the responsibility for monitoring and reporting on the quality of forest management with respect to this and all other zones. The community and the Forest Service have joint responsibility for ensuring that local communities or others from outside do not damage the sanctuaries.

3.5 The communities have the right to collect only those products defined at the time of plan preparation.

3.6 The Forest Service has the rights to warn, restrain or prosecute anyone who infringes the forest laws and wilfully damages the forest in this zone.

### 4. Provenance Protection Areas (PPAs)

Area Category	Characteristics	Objectives of Management
Provenance Protection Area	Area with high populations of key economic species.	Act as gene banks for exploited species

4.1 *Measurable Objective:*

- a) The PPAs will be defined at the time of plan preparation under the direction of the Botany Unit, FMSC. The area as defined and demarcated should not be allowed to diminish during the course of plan implementation - unless specific modifications are received from FMSC.
- b) The quality of the forest in terms of its condition class should not deteriorate and would be expected to improve.

4.2 *Management Regime:* No commercial logging

The collection of NTFPs restricted but acceptable where non-destructive.

4.3 *Management Prescriptions:*

- All compartments with more than 65% of its area falling in this zone to be managed in accordance with the approved regime. Otherwise the compartment can be subdivided and managed separately.
- No timber harvesting to be allowed except where specific trees have been marked by FMSC for removal in order to encourage the development of commercial species.
- No construction of tracks
- Collection of NTFPs allowed providing there is no disruption to the canopy

4.4 *Rights and Responsibilities:* The Forest Service has the responsibility for ensuring that no timber concessions infringe on to this zone and for monitoring of their activities in the area where PPAs adjoin timber production areas. The Forest Service also has the responsibility for monitoring and reporting on the quality of forest management with respect to this and all other zones. The community and the Forest Service have joint responsibility for ensuring that local communities or others from outside do not damage the PPAs.

4.5 The communities have the right to collect NTFPs defined at the time of plan preparation.

4.6 The Forest Service has the right to warn, restrain or prosecute anyone who infringes the forest laws and wilfully damages the forest in this zone.

## 5. Special Biological Protection Areas (SBPAs)

Area Category	Characteristics	Objectives of Management
<b>Special Biological Protection Area</b>	Areas of high plant GHI or presence of rare fauna species.	Full protection of areas of high bio-diversity and therefore of both national and international value.

5.1 *Measurable Objectives:*

- a) Areas as defined by the Botany unit of FMSC at the time of plan preparation to be retained without any deterioration of the site or the quality of the forest.
- b) Floral and fauna diversity of the area to be maintained or improved
- c) Populations of specially identified species to be maintained or increased.

5.2 *Management Regime:* No tree felling

The collection of all NTFPs not allowed

*Local Modifications* -For very large SBPAs, a buffer zone may be recognised where the selective collection of NTFPs will be allowed. A central core being retained for complete protection.

5.3 *Management Prescriptions:*

- All compartments with more than 50% of its area falling in this zone to be managed in accordance with the approved regime. Otherwise the compartment can be subdivided and managed separately.
- No logging of any type to be allowed within the SPBAs (including buffer zones)
- No construction of tracks
- Collection of NTFPs not allowed, limited collection may be possible within the buffer zones if these have been demarcated as such . Collection within the core area always forbidden.

5.4 *Rights and Responsibilities:* The Forest Service has the responsibility for ensuring that no timber concessions infringe on to this zone and for monitoring of their activities in the area where SBPAs adjoin other zones. The Forest Service also has the responsibility for monitoring and reporting on the quality of forest management with respect to this and all other zones The community and the Forest Service have joint responsibility for ensuring that local communities or others from outside do not enter the SBPAs. In areas protected in the interest of the globally significant biodiversity, the Forest Service is responsible for trying to secure compensatory grants or funding for alternative livelihood support wherever possible.

5.5 The communities have a restricted right to collect specified NTFPs within the buffer zones but not within the core zone. The range of NTFPs and the location of the buffer zone to be agreed at the time of plan preparation.

5.6 The Forest Service has the right to warn, restrain or prosecute anyone who infringes the forest laws and wilfully damages the forest in this zone.

**6. Cultural Sites**

<b>Area Category</b>	<b>Characteristics</b>	<b>Objectives of Management</b>
<b>Cultural sites and Tourist Development Areas</b>	Culturally important areas identified during the gazettment procedure or following local consultation process. May be both national archaeological sites and those relating to local traditions	Preservation of the sites of traditional or historic value for the benefit of the local community and the nation. Encouragement of tourism when appropriate and agreed by the communities

6.1 *Measurement Objectives:* Preservation of the site. No damage to be caused to the area through the collection of timber or NTFPs.

6.2 *Management Regime:* complete protection from forest activities.

6.3 *Management Prescriptions:*

- All compartments with more than 65% of its area falling in this zone to be managed in accordance with the approved regime. Otherwise the compartment can be subdivided and managed separately.
- No logging of any type to be allowed within cultural sites
- No construction of tracks

- Collection of NTFPs not allowed, unless communities request specific products (non-destructive collection techniques) acceptable within local traditions.

6.4 *Rights and Responsibilities:* The Forest Service has the responsibility for ensuring that no timber concessions infringe on to this zone and for monitoring of their activities in the area where cultural areas adjoin other zones. The Forest Service also has the responsibility for monitoring and reporting on the quality of forest management with respect to this and all other zones. The community and the Forest Service have joint responsibility for ensuring that local communities or others do not damage these sites.

6.5 The communities may have a very restricted right to collect specified NTFPs. The range of NTFPs to be agreed at the time of plan preparation.

6.6 The Forest Service has the right to warn, restrain or prosecute anyone who infringes the forest laws and wilfully damages the site.

## 7. Research Areas

Area Category	Characteristics	Objectives of Management
Research Area	Research Working Circles	Provide scientific and technical knowledge of use both by the Forest Service and the wider scientific community

7.1 *Measurable Objectives:* Site to be managed in accordance with the treatments defined in the research plan.

No undesired external treatment allowed to affect the forest.

7.2 *Management Regime:* Defined by the research organisation..

7.3 *Management Prescriptions:*

- All compartments with more than 75% of its area falling in this zone to be managed in accordance with the approved regime. Otherwise the compartment can be subdivided and managed separately.
- No logging of any type to be allowed within research sites, unless specified within the research plan.
- No construction of tracks, unless specified in the research plan
- Collection of NTFPs not allowed, unless specific instructions to the contrary are provided by the research organisation.

7.4 *Rights and Responsibilities:* The Forest Service has the responsibility for ensuring that no timber concessions infringe into research sites, unless standard logging is acceptable to the researchers. The Forest Service also has the responsibility for monitoring and reporting on the quality of forest management with respect to this and all other zones. The Forest Service will monitor timber extraction where activities are close to research plots. The community and the Forest Service have joint responsibility for ensuring that local communities or others do not damage these plots.

The Forest Service has the right to warn, restrain or prosecute anyone who infringes the forest laws and wilfully damages the plots.

## 8. Fauna Protection Areas (FPAs)

Area Category	Characteristics	Objectives of Management
Fauna Protection	Areas identified by the Wildlife	Maintenance of natural

<b>Areas</b>	Department as being critical to the preservation of the habitat required for rare or important species.	habitat for critical species.
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8.1 *Measurable Objectives:*

- a) Areas as defined by the Wildlife Department at the time of plan preparation to be retained without any deterioration of the site or the quality of the forest.
- b) Floral and fauna diversity of the area to be maintained or improved
- c) Populations of specially identified species to be maintained or increased.

8.2 *Management Regime:* No tree felling  
The collection of all NTFPs not allowed  
No road or track development

*Local Modifications* -For very large FPAs, a buffer zone may be recognised where the selective collection of NTFPs will be allowed. A central core being retained for complete protection.

8.3 *Management Prescriptions:*

- All compartments with more than 50% of its area falling in this zone to be managed in accordance with the approved regime. Otherwise the compartment can be subdivided and managed separately.
- No logging of any type to be allowed within the FPAs (including buffer zones)
- No construction of tracks
- Collection of NTFPs not allowed, limited collection may be possible within the buffer zones if these have been demarcated as such . Collection within the core area always forbidden.

8.4 *Rights and Responsibilities:* The Wildlife Department and the Forest Service have the responsibility for ensuring that no timber concessions infringe on to this zone and for monitoring of their activities in the area where FPAs adjoin other zones. The Forest Service also has the responsibility for monitoring and reporting on the quality of forest management with respect to this and all other zones The community and the Forest Service have joint responsibility for ensuring that local communities or others from outside do not enter the FPAs

8.5 The communities have a restricted right to collect specified NTFPs within the buffer zones but not within the core zone. The range of NTFPs and the location of the buffer zone to be agreed at the time of plan preparation.

8.6 The Forest Service has the right to warn, restrain or prosecute anyone who infringes the forest laws and wilfully damages the forest in this zone.

## Semi-Protected Areas

### 9. Fire Buffer Zones

<b>Area Category</b>	<b>Characteristics</b>	<b>Objectives of Management</b>
<b>Fire Buffer Zones</b>	Intact areas surrounding 'valuable' forest in fire prone areas	Provide a buffer from fire from outside the reserve reaching valuable forest considered to be fire-susceptible.

9.1 *Measurable Objectives:*

- a) Forest areas that are identified as Fire Buffer Zones by the Ecology Unit of FMSC at the time of plan preparation to be retained and successfully prevented from further logging.



- b) Ground cover maintained in semi-green state due to maintenance of closed forest conditions
- c) Forest fires peter out before crossing the buffer

9.2 *Management Regime:* No tree felling

The collection of all NTFPs allowed providing harvesting is non-destructive to the forest.

9.3 *Management Prescriptions:*

- All compartments with more than 50% of its area falling in this zone to be managed in accordance with the approved regime. Otherwise the compartment can be subdivided and managed separately.
- No logging of any type to be allowed within the fire buffer zones
- No construction of tracks
- Collection of NTFPs allowed where the collection does not damage the forest
- Early burning along the outer edge of the buffer
- Additional fire line to be maintained along the inside edge of the buffer

9.4 *Rights and Responsibilities:* The Forest Service has the responsibility for ensuring that no timber concessions infringe on to this zone. The community and the Forest Service have joint responsibility for ensuring that local communities or others from outside do not log within the buffer zones. The Forest Service also has the responsibility for monitoring and reporting on the quality of forest management with respect to this and all other zones

9.5 The communities have a restricted right to collect specified NTFPs within the fire buffer zones. The range of NTFPs to be agreed at the time of plan preparation.

9.6 The Forest Service has the right to warn, restrain or prosecute anyone who infringes the forest laws and wilfully damages the forest in this zone.

## 10. Shelterbelts

Area Category	Characteristics	Objectives of Management
Shelterbelts	Areas with a large boundary to area ratio which are therefore particularly vulnerable.	Maintenance of forest cover and hence restrict spread of fire and provide continuing shelter for agricultural crops

10.1 *Measurable Objectives:*

- a) Areas that are identified as Fire Shelterbelts by the Ecology Unit of FMSC or by the DFO at the time of plan preparation to be retained and successfully prevented from further logging.
- b) Ground cover maintained in semi-green state due to maintenance of closed forest conditions
- c) Forest fires peter out before crossing the buffer

10.2 *Management Regime:* No felling of any live trees. no felling of any slightly burnt trees

The collection of all NTFPs allowed providing harvesting is non-destructive to the forest.

10.3 *Management Prescriptions:*

- Compartments can not be subdivided - all compartments in narrow strips of forest within the DS and MS zones to be included

- No logging of any type to be allowed within the shelterbelts
- No construction of tracks
- Collection of NTFPs allowed where the collection does not damage the forest
- Early burning along the outer edge of the buffer
- Additional fire line to be maintained along the inside edge of the shelterbelt

10.4 *Rights and Responsibilities:* The Forest Service has the responsibility for ensuring that no timber concessions are allocated to these compartments. The Forest Service also has the responsibility for monitoring and reporting on the quality of forest management with respect to this and all other zones. The community and the Forest Service have joint responsibility for ensuring that local communities or others from outside do not log within the shelterbelts.

10.5 The communities have a restricted right to collect specified NTFPs within the shelterbelts. The range of NTFPs to be agreed at the time of plan preparation.

10.6 The Forest Service has the right to warn, restrain or prosecute anyone who infringes the forest laws and wilfully damages the forest in this zone.

## 11. Convalescence Forest

Area Category	Characteristics	Objectives of Management
Convalescence forest	Forest which due to either the effects of past logging or fire is now at stage where it can not be logged in the present management cycle. A guide of 15m <sup>2</sup> /ha basal area or less is indicative in this case	Area left to regenerate until commercially sized timber available for felling

### 11.1 Measurable Objective:

- a) Areas as defined at the time of plan preparation are maintained are not logged for at least 40 years.
- b) Regular improvement in the stocking of the forest over the convalescence period

11.2 *Management Regime:* No logging for at least 40 years  
Intensive fire protection  
Enrichment planting in selected areas  
Collection of NTFPs restricted to herbs

### 11.3 Management Prescriptions:

- All compartments with more than 65% of its area falling in this zone to be managed in accordance with the approved regime. Otherwise the compartment can be subdivided and managed separately.
- No logging of any type to be allowed until the area reverts back to timber production
- Enrichment planting with suitable fast growing species planted into cut lines at intervals of around 5-10 m intervals
- Maximum fire protection should be planned. The perimeter to be defined with clear fire lines. For large areas, division by subsidiary fire breaks should be carried out.
- Collection of NTFPs allowed where the collection does not damage the forest

The status of the forest will be reviewed after 40 years to see if the areas can be brought into the forthcoming rotation.

11.4 *Rights and Responsibilities:* The Forest Service has the responsibility for ensuring that no timber concessions are allocated to these compartments. The Forest Service also has the responsibility for monitoring and reporting on the quality of forest management with respect to this and all other zones. The community and the Forest Service have joint responsibility for ensuring that local communities or others from outside do not attempt to log in these areas.

11.5 The communities have a restricted right to collect specified NTFPs. The range of NTFPs to be agreed at the time of plan preparation.

11.6 The Forest Service has the right to warn, restrain or prosecute anyone who infringes the forest laws and wilfully damages the forest in this zone.

**Manual of Procedures - Forest Resource Management in the HFZ**  
**MOP Section A - Strategic Planning**

**A2. Forest Reserve Management Plans**

**Instruction Sheet A2.7 Provisional management planning for production zones**

**I. Introduction**

1.1 This Instruction Sheet provides assistance on the management planning required for all the production zones. The format is similar to that used for Instruction Sheet 2.6 (Protection Zones). For all the zones, descriptions are provided for the main sub heads of Measurable Objectives, Management Regimes, Management Prescriptions and Rights and Responsibilities as used in Sheet 2.6; however, an additional heading of Indicative Levels of Production is also included.

1.2 There will be uniformity for many of these subheads across the country for any one particular zone.

**2. Timber Production Areas**

<b>Area Category</b>	<b>Characteristics</b>	<b>Objectives of Management</b>
<b>Timber Production Areas</b>	Healthy productive forest. >15m <sup>2</sup> /ha. basal area which does not fall into a protection zone or NTFP area designation.	Sustainable timber production

2.1 *Measurable Objectives:* Sustainable production of timber to provide a perpetual flow of wood products, revenue for the resource owners and to fund forest management while maintaining environmental quality and social responsibility.

Timber production should be roughly equal each year and as the forest moves into normality the area of forest logged each year should be close to 1/40 of the total area of the timber production area.

2.2 *Management Regime:*

The timber production areas will be managed using the selection system with fixed diameter limits for each commercial species. The rotation has been set at 40 years for all forests. Yield is strictly controlled using documented guidelines on tree selection and the application of defined yield formula..

2.3 *Management Prescriptions:- summary*

- definition of the timber production areas into compartments of around 100 -150 ha
- definition of harvesting schedules to define the most appropriate time to fell each compartment linked to the identification of the extent of the Timber Utilisation Contract (TUC) area.
- Award of timber utilisation contracts
- 100% stock surveys of compartments scheduled for felling  
yield calculation and yield approval and selection of trees to be extracted

*Management Prescriptions - detailed*

### Formation of Compartments

2.4 In order to ensure adequate control over operations, it is necessary to subdivide the reserve into compartments. For most reserves, compartments have already been identified (at least on paper) for those areas identified as being outside the original Protection Working Circles as used in the first management plans. Following re-zoning of the reserves it may be necessary to re-examine the layout of the compartments. If changes have to be made the opportunity should be made to ensure that boundaries follow natural features (streams, ridges, slope breaks etc.) as much as possible, to limit the problems of identification in the forest.

2.5 The identification of compartments on a map should cover all forest zones. However, where there are large contiguous blocks of Hill Sanctuaries, then compartment numbers are of less importance in terms of the management plan. The mapping section of FMSC may need to prescribe compartment numbers to all areas, however, for purposes of maintaining the map data base.

2.6 The standard compartment dimensions of 1 mile x 0.5 mile or 1,600 x 800 m approx. (equivalent to 128 ha) does not need to be rigidly adhered to but a compartment size of 100-150 ha is of the right order. Changing compartment boundaries for those reserves where there are already well documented compartment records should be avoided because of the need to maintain a continuous record of operations carried out within a particular area and to ensure that any one area is not re-entered prior to the 40 year period. Compartments are demarcated by fixed pillar. Prior to harvesting the boundary lines are cut.

### Harvesting Scheduling

2.7 In order to adhere to the management regime of a 40 year felling cycle, it is necessary to allocate each compartment within the timber production area into five year felling coupes to fit as closely as possible to a forty year period between planned felling and the time of last entry. This process is described in detail in the MoP Section E. In order for this process to be properly carried out details of compartment history are needed and for this reason, the maintenance of a compartment register is essential.

2.8 The area available and the age structure of the regeneration within the timber production area of a single reserve will in many cases be insufficient to provide adequate timber for an economically viable TUC. Even where the strategic management plan has been prepared for a Forest Management Unit of total area (all zones) of around 500 km<sup>2</sup>, the area available for timber production might still be considered inadequate. In such circumstances re-grouping of reserves for purposes of timber production may be necessary. For details on the process of operational planning for TUCs on reserve including the award of the TUC contract, you are referred to MoP Section F.

### Stock Surveys and Allocation of Yield.

2.9 The Forest Service has adopted a procedure of 100% stock surveys following the award of TUCs. All commercial species of diameter in excess of 50 cm (and 30 cm for a few species) are measured and recorded and their position noted on survey sheets. All Black Star species are recorded (regardless of their size). The survey is used not only to record the position of potential harvestable trees but to detail information required for the implementation of fine-grained protection rules, this takes into account such matters as:-

- distribution of trees within the compartment
- condition of the forest canopy and understorey
- need to retain more trees in sensitive areas
- need to retain seed trees
- protection of 25m wide riparian strips
- slopes, swamps and rocky areas
- protection of any rare species

2.10 Strict rules set the number of trees that can be felled per ha and the total cut allowed for each species is fixed by application of one of two yield formula (referred to as “standard” and “reduced”). The process of stock surveys and yield allocation are the subject of MoP Section D. Yield approval is given in the form of a felling permit which lists the stock survey number and species of all trees that can be felled.

*Indicative Level of Production*

2.11 The plan should provide an indicative level of production expected from the timber production zone, based on information derived from pre-exploitation inventories or from actual yields derived from this reserve or an adjacent reserve where conditions are similar.

2.12 Assistance from FMSC may be required on this aspect, though the DFO will be supplied with all relevant information taken from the national forest inventory plus any other subsequent studies as part of the Part 1 exercise.

*Rights and Responsibilities:*

2.13 The following rights and responsibilities apply to this zone:-

- a) The Forest Service has the responsibility for ensuring that the TUC is allocated only within the timber production areas of the reserve and ensuring that the consultation process has been correctly adhered to with respect to the preparation of the Timber Operational Specifications and the Social Responsibility Agreements required under the TUC procedures.
- b) The Forest Service has the responsibility for ensuring that the concessionaires adhere to the regulations of the Logging Manual in all respects.
- c) The Forest Service also has the responsibility for ensuring that all payments are collected on behalf of the landowners and the Government and that accounts of all such receipts are properly maintained for inspection .
- d) The communities have the responsibility of adhering to the TUC and allowing unfettered access to the site by the contractor, providing he has adhered to the contract. They have the joint responsibility with the Forest Service and the contractor of controlling illegal logging, encroachment and forest fire.
- e) The contractor has the responsibility to respect the rights of the landowners and to ensure that the all aspects of the contract are adhered to.
- f) The communities have a restricted right to collect specified NTFPs . The range of NTFPs to be agreed at the time of plan preparation.
- g) The contractor has the right to access to the site and the removal of timber in accordance with the terms of the contract and the procedures of the implementation of the TUC.
- h) The Forest Service has the right to warn, restrain or prosecute anyone who infringes the forest laws and wilfully damages the forest in this zone.
- i) The Forest Service has the right to stop the operation of the contractor if he is seen to operating in breach of the TUC agreement

### 3. NTFP Production Areas

Area Category	Characteristics	Objectives of Management
NTFP Production Areas	Areas identified by rights holders as important NTFP collecting grounds which do not fall into the protection designations.	Sustainable production of NTFPs for local and commercial use

#### *Measurable Objectives:*

3.1 Sustainable production of NTFPs (including bushmeat) for domestic use by local communities and for meeting the demands of controlled commercial trading .

3.2 The type of NTFPs traditionally collected and traded by the local communities will have be defined during the initial field investigations (refer Instruction Sheet 2.4) and the collection sites identified. Although the collection of NTFPs will be a right for the local communities (with some controls) in all the zones - with the exceptions of the SBPAs and the Fauna Protections Areas; this zone defines special collection areas to be set aside where normal logging is excluded. In such areas a measurable objective will be that the harvestable volume is maintained or increased, and that the boundaries of the area are respected by other forest users.

#### 3.4 *Management Regime*

No commercial logging. Selective felling to create light gaps to encourage the growth of selective NTFPs permissible

#### 3.5 *Management Prescriptions*

- All compartments with more than 65% of its area falling in this zone to be managed in accordance with the approved regime. Otherwise the compartment can be subdivided and managed separately.
- No commercial logging
- The selective opening the of canopy and removal of undergrowth to be undertaken in accordance with the silvicultural requirements of the NTFPs being encouraged
- Propagation of NTFPs to be undertaken in suitable sites, but any extensive opening of the tree canopy permissible only on a case by case basis.
- Hunting to be controlled through the issue of licences and agreed quotas

#### *Indicative Level of Production*

3.6 The plan should provide an indication of the level of production to be expected for any commercially traded product. Figures will in most cases have to be based on historical trade figures supported where possible by local knowledge on number of headloads etc. removed. The assistance of the Community Forestry Management Unit in FMSC should be consulted for background information on the standard production levels to be expected to assist in completing this section.

3.7 It is unlikely that the district team will feel that they have adequate information to differentiate the target level of NTFP production from this zone from the expected production from all the other zones where NTFP collection is acceptable practice. In most plans, the total production for the entire reserve/FMU will be the best that can be achieved.

#### 3.8 *Rights and Responsibilities:*

- a) The Forest Service has the responsibility for ensuring that the NTFP Production Area is excluded from the TUC area.

- b) The communities have a responsibility for ensuring that no tree felling is undertaken without a permit and no cultivation is undertaken except for the production of recognised NTFPs
- c) The communities have a responsibility for ensuring that no fire is used for clearing undergrowth and that any such work is only undertaken as part of an approved programme.
- d) The communities have a responsibility for ensuring that all hunters are duly licensed and adhere to self-managed quotas
- e) The Forest Service has the right to warn, restrain or prosecute anyone who infringes the forest laws and wilfully damages the forest in this zone.
- f) The community have the right to keep the revenue generated from the sale of the NTFPs less any royalty that has been defined within the plan.

#### 4. Plantation Production Areas

Area Category	Characteristics	Objectives of Management
<b>Plantation Production area</b>	Existing stands of artificially regenerated areas	Income generation from timber pole and fuelwood production maximised in accordance with professional forestry technical and commercial principles

4.1 *Measurable Objectives:* Regular production of marketable produce providing a commercial return on investment

4.2 *Management Regime:* Plantations established by use of seedling stock (rarely direct seeding) and managed in accordance with well tested silvicultural principles specific to the particular species using thinning at defined intervals to maximise production of material of commercially desirable diameters.

4.3 *Management Prescriptions- summary*

- Plantation area divided into compartments of 50 ha approx.
- seedlings raised in nurseries as potted stock
- standard silvicultural regimes applied for:-
  - weeding
  - thinning
  - pruning
  - and the timing of final felling
  - method of crop replacement
- Extensive use of contract labour to undertake all operations
- Possible use of taungya principles for crop replacement and initial establishment
- Competitive bidding for sale of produce
- Competitive bidding for the incorporation of existing plantations into new plantation development projects.

*Management Prescriptions -detailed*



### Formation of Compartments

4.4 Compartments of approximately 20- 50 ha are to be used. Where this mean making use of the standard natural forest compartment of 128 ha then it will be divided into four and numbered in accordance with the old compartment number but with an additional suffix ( i.e. 48/1, 48/2 etc.). Compartments should be pillared and the boundaries kept clean. (Refer Plantation MoP Section A)

4.5 A compartment register is required to be maintained providing information on the compartment location and all activities undertaken and a 1:10,000 scale compartment map prepared.

### Seed Production and Collection

4.6 Seed has been traditionally collected from locally identified seed stands or from standard stock. this has led to the use of material of poor genotype and in the future the standard practice will be only to use seed approved by FORIG for the plantations on-reserve

### Forest Nurseries

4.8 Planting stock is raised as tubed stock using direct sowing into the polythene pots or tubes or making use of separate germination beds where seed is known to demonstrate irregular germination. Reference should be made to the Plantation MoP Section B.

### Silvicultural Operations

4.9 Weeding is required until canopy closure. The prescribed treatment being clearance of the planting lines for a width of 2 m as often as is required during the season (refer Plantation MoP Section C). All weeding is by hand. In the future, where slope and site access permits, the selective use of mechanical weeding will be necessary for large scale plantation development..

4.10 Silvicultural selective thinning is standard and prescribed thinning regimes are available for teak, Cedrela/Ofram and Gmelina, (Plantation MoP Section C). Regimes for other species will be made available from FORIG as required. Pruning in order to reduce knot incidence will be essential for the final crop if international markets are being aimed for or the material is destined for peeling.

4.11 Past practice has been to make use of taungya for plantation establishment. This practice can still be used for small areas and where old plantations are being replaced under the direction of the Forest Service. However it is unlikely to be a standard practice where large scale plantation development is being undertaken under commercial contracts.

### Competitive Bidding

4.12 The use of competitive bidding and fixed contracts for thinning and other operations should be considered the normal practice, since the Forest Service will not maintain a sufficient permanent labour force to undertake such work. Local communities should be encouraged to bid to undertake such operations in order to retain as much income as possible within the community.

### *Indicative Level of Production*

4.13 The plan should provide an indicative level of production expected from the plantations, based on the age structure and details of the stocking and standing volume provided by the recent national inventory. This should be in a summary form covering a period of about 20 years if the DFO feels that the data is adequate to show this. The level of planting or replanting would be indicated based on the expected time of clear felling.

4.14 As an attachment to the strategic plan, there will be five year operational plans (refer MoP Section B), in which as much detail as possible will be required on the level of activities and level of production over the next five years.

4.15 Assistance from FMSC may be required on this aspect, though the DFO will be supplied with all relevant information taken from the national forest inventory plus any other subsequent studies as part of the Part 1 exercise.

4.17 *Rights and Responsibilities:*

- a) The Forest Service has the responsibility for ensuring that the plantations are managed in a commercially and technically responsible manner.
- b) The Forest Service has the right to warn, restrain or prosecute anyone who infringes the forest laws and wilfully damages the forest in this zone.

## 5. Conversion Areas

Area Category	Characteristics	Objectives of Management
Conversion or Plantation Development Area	Areas where forest cover and regeneration is minimal and might be suitable for conversion to plantations. A guide of 5m <sup>2</sup> basal area or less would suggest this condition.	To restore tree cover on severely degraded areas of the forest reserve, through the establishment of plantations, in order to restore environmental functions and to generate revenue for the resource owners.

5.1 *Measurable Objectives:* Degraded forest land restored to productive use through the establishment of commercially viable plantations.

5.2 *Management Regime:* Land initially identified as supporting very degraded forest, confirmed to be classified as condition class 6 and unsuitable for regeneration. It is set aside for plantation development by the private sector

5.3 *Management Prescriptions:*

- Initially zonation from satellite imagery, supported by reconnaissance, to indicate extent of the degraded area.
- More detailed surveys to confirm forest is generally condition class 6 and that the frequency of regeneration is too low to be viable.
- All compartments with more than 65% of its area falling in this zone to be managed in accordance with the approved regime. Otherwise the compartment can be subdivided and managed separately.
- Maps of the zone made available at appropriate scale (1:10,000 - 1,50,000) depending on extent, and boundary descriptions prepared
- Private sector investment for an approved forestry plantation programme initiated
- Forest Service to undertake site assessment studies in order to assist private sector investors on possible sites and growth potential.
- Would-be investors required to undertake feasibility studies and business development plan for consideration.
- Would be investors required to undertake a full EIA and SIA
- Plantation developers enter into an agreement with the resource owners which specifies property rights, social responsibilities and benefit-sharing arrangements.
- Plantation development undertaken under a fixed (long) term contract with guidelines on the technical requirements expected from the Forest Service.

5.4 *Indicative Level of Production:* The plan should provide an indicative level of production expected from the plantations development area, based on average production levels for key indicator plantation species likely to be suited to the site. Assumptions will need to be made on the amount of land likely to be found suitable for planting .

5.5 *Rights and Responsibilities:*

- a) The Forest Service has the responsibility for ensuring that the land is put into useful production as soon as possible.
- b) The Forest Service has the responsibility of ensuring that the selection of the contractor is carried out in fair and transparent manner and to the satisfaction of the land owners
- c) The Forest Service has the responsibility of monitoring the programme and ensuring that all the guidelines relating to quality of stock, silvicultural management and protection are fully adhered to.
- d) The successful contractor has the responsibility of developing the site in accordance with the management proposal.
- e) The contractor has the right to develop the site without interference providing all aspects of the contract are adhered to.
- f) The community has the right to be kept informed of the selection process for the contractors and the reasons for selecting a particular candidate. The approval of the landowners will be required before the contract can be issued.
- g) The Forest Service has the right to warn, restrain or prosecute anyone who infringes the forest laws and wilfully damages the forest in this zone.

**Manual of Procedures - Forest Resource Management in the HFZ**  
**MOP Section A - Strategic Planning**

**A2. Forest Reserve Management Plans**

**Instruction Sheet A2.8 Provisional management planning for local people**

**1. Introduction**

1.1 This instruction sheet provides guidance on management planning for provision of benefits to the local communities and the land owners.

**2. Revenue From Forest Reserve Management**

2.1 *Management objective:* To ensure that as owners of the reserve, the people of ..... shall receive the gross revenue arising from the utilisation of the forest reserve in accordance with this management plan, less any deductions the Forest Service is authorised to make by law in order to carry out its operations

2.2 *Management regime:*

Forest Service will collect all revenue on behalf of the owners and will disburse the revenue to the Administrator of Stool Lands for onward distribution to the Stool, Traditional Authority and District Assembly in a timely manner and in accordance with the 1992 Constitution.

2.3 *Management prescription:*

- Service agreement with forest owners to stipulate that the Forest Service will be required to extract maximum market value from forest exploitation and make deductions for management expenses only against activities that have been agreed in the management plan.
- Accounts on all transactions to be maintained and summarised on a monthly basis as part of the standard monthly reporting procedure. A financial report to be prepared as part of the annual report for each reserve/FMU (refer Instruction Sheet 2.11) each of which should be made available to the public.
- All records of revenue disbursements to traditional authorities, stools and district assemblies will be made public in order to ensure the members of the resource owning communities are fully apprised of transactions being made on their behalf.

2.4 *Indicative levels of revenue:*

Forest Service should be able to make projections of the likely revenue flows in the period of the plan based on the TUC agreements and historical levels of NTFP marketing.

2.6 *Rights and responsibilities:*

- a) The Forest Service has the responsibility of ensuring that full records of all receipts and expenditure are maintained and available for public scrutiny
- b) The Forest Service has the responsibility for ensuring that all revenue owed to the land owners is returned to them without delay on the basis of quarterly transfers
- c) The Forest Service has the responsibility of presenting an annual financial statement as part of the annual reporting programme. Such reports will be in the public domain
- d) The land owners/communities have the right to request details of all transactions carried out on their behalf.

- e) The land owners/communities have the right to be informed of how the Forest Service has made use of the management fees retained under the agreements
- f) The resource owners have the right to sue the Forest Service for any failure to collect and disburse revenue or for delays in forwarding revenue. The resource owners have the right to receive interest on any late disbursements.
- g) The Forest Service has the right to retain a fee for their services, providing it does not exceed the stated terms of the agreements

### 3. Access To Forest Products

#### Domestic Use

*3.1 Measurable objective:* To maintain a perpetual flow of forest produce to communities with domestic user rights in order to fulfil some of their household requirements for forest produce.

*3.2 Management regime:* Local communities identified as having domestic user rights will be allowed free and unhindered access to the reserve to collect forest produce in accordance with the harvesting rules agreed between representatives of all communities and the Forest Service.

*3.3 Management prescriptions:*

- Harvesting rules can be agreed for all management zones, however in the case of SBPAs and Fauna Protection Areas there may be severe restrictions on the collection at least for the core areas.
- Socio-economic assessment of the critically important NTFPs and other forest produce, harvesting levels, traditional controls, marketing processes, scale of use within the community, household needs assessment and level of export out of the area.
- Resource assessment of each critical NTFP
- Formulation of rules and agreements for harvesting of each NTFP on sustainable basis, incorporating as much as possible the traditional practices and controls.

*3.4 Indicative levels of production:* The Forest Service should be able to stipulate the amount each household can take based on the agreed rules and historical levels of collection.

*3.5 Rights and Responsibilities:* Specific rights and responsibilities will be defined in each domestic use agreement. General provisions are:-

- The Forest Service has the responsibility of ensuring that surveys and negotiations required to develop domestic use agreements are undertaken.
- The Forest Service has the responsibility of periodic monitoring of exploitation according to the harvesting rules and periodic monitoring of the condition of the resource.
- The Forest Service has the responsibility of ensuring that no NTFPs are harvested by the TUC holder and his employees and that TUC operations are sympathetic to NTFP production.
- The Forest Service has the responsibility of ensuring that all FS staff are aware of the agreed domestic use rights.
- The FS has the responsibility to prosecute outsiders not in the possession of domestic use rights who harvest forest produce unlawfully.
- All members of the communities with user rights have the responsibility for adhering to the rules and for ensuring fellow members the community do so and that outsiders do not enter the reserve.
- The holders of domestic use rights have the right to harvest NTFPs unhindered and free of charge as long as they adhere to the terms of the agreement.

- The holders have a right to be compensated for severe restrictions imposed in the interests of global biodiversity conservation.

### Commercial Collection and Marketing of NTFPs

*3.6 Measurable objective:* To formulate a ceiling for the sustainable level of the production of NTFPs within a reserve and ensure that production is maintained as close to this as possible in order to provide a direct revenue to the local community. The level of production to be constantly reviewed in the light of changes to the forest resource.

*3.7 Management regime:* Sustainable harvesting of NTFPs by forest user groups with rights to the reserve. The level of collection to be controlled by locally defined rules relevant to the specific forest management zone. Collection to be concentrated within the NTFP Production Area. Permits for the collection of NTFPs on a commercial basis will be issued by the Forest Service (refer the Guidelines on NTFP Production). If the communities with local user rights have no wish to harvest a particular NTFP, the Forest Service can issue a permit to a commercial collector from outside of the area. The same harvesting rules will apply. Tariffs will be set and revenue returned to the resource owners.

*3.8 Management prescriptions:*

- Socio-economic assessment of the critically important NTFPs, harvesting levels, traditional controls, marketing processes, scale of use within the community, household needs assessment and level of export out of the area.
- Resource assessment of each critical NTFP
- Formulation of rules and agreements for harvesting of each NTFP on sustainable basis.
- Formulation on rules on number of individuals/groups to be allowed to collect
- Fixing of local tariffs
- Silvicultural interventions to increase production within the NTFP Production Areas

*3.9 Indicative levels of production:* The Forest Service should be able to stipulate the amount to be harvested following resource assessments and analysis of historical levels of collection. Levels will need to be constantly reviewed.

*3.10 Rights and responsibilities:*

- a) The Forest Service has the responsibility to ensure that the collection of NTFPs is in accordance with the guidelines agreed for each management zone and to stop excessive cutting or where damage is being done to the forest.
- b) The Forest Users have the responsibility to adhere to all guidelines set for the level of harvesting and to respect the restrictions placed on specific management zones.
- c) The Forest Users have a right to increase the level of production of NTFPs when appropriate, within the NTFP Production Areas by removal of competing undergrowth and manipulation of light in accordance with prescriptions provided by the Forest Service
- d) The Forest Users have the right to freely collect such products without hindrance providing the locally agreed guidelines are adhered to
- e) The Forest Service has the right to warn, restrain or prosecute anyone who infringes the forest laws and wilfully damages the forest in this zone.

## **Manual of Procedures - Forest Resource Management in the HFZ**

## MOP Section A - Strategic Planning

### A2. Forest Reserve Management Plans Instruction Sheet A2.9      Compilation of Part 1

#### 1. Introduction

1.1 This Instruction Sheet deals with the compilation of the Part 1 of the Management Plan. Part 1 should provide the reader with an overview of the present condition of the forest reserve/FMU in terms of the resource and its recent management. It should provide key information on the land owners with respect to their location and their property rights. Furthermore it should provide the main aspects relating to existing infrastructure and the administration that has controlled the reserve(s).

1.2 An important conclusion to Part 1 will be a SWOT analysis i.e. an examination of the **strengths** and **weaknesses** of the reserve/FMU in terms of its past management and the state and value of the resource coupled with an examination of the **opportunities** and **threats** to the future management of the reserve/FMU.

1.3 Part 1 should be focused on the main facts and should not dwell too much on the distant past unless figures (on production etc.) are readily at hand and are relevant to understanding the present situation and the future management. There is for example probably little need to collect revenue and production figures beyond 10 years in the past - unless there is a major change in trend to be emphasised and the data is available without excessive research.

1.4 The main task of compiling Part 1 will fall to the regional planning team with active support of the district staff and FMSC. The latter should assist in synthesising all the relevant information from the national inventories and providing the location maps for Part 1, together with the zonation maps that will be required for compilation of Part 2

#### 2. Structure of Part 1

2.1 The composition of Part 1 of the plan can be varied in accordance with local conditions, however the regional teams are strongly recommended to use the following framework where relevant. Notes explaining the content of some of the sections are given in italics.

### **PART 1:      CURRENT SITUATION**

#### SECTION 1: LOCATION AND EXTENT

- 1.1 Geographical location [*and 100,000 map*]
- 1.2 Area, perimeter
- 1.3 District Administration

#### SECTION 2: PROPERTY RIGHTS

- 2.1 Ownership of the reserve
- 2.2 Date of gazettment and management rights  
*(dates of any excisions)*
- 2.3 Domestic usufruct rights /customary rights
- 2.4 Timber harvesting rights
- 2.5 NTFP commercial harvesting rights
- 2.6 Others *(e.g. prospecting or mining rights)*

*plantation development rights)*

### SECTION 3: LOCAL CONTEXT

- 3.1 Demography
- 3.2 Economy
- 3.3 Local people's relations with the reserve
- 3.4 District Development Plan

### SECTION 4: STATE OF THE FOREST RESOURCE

- 4.1 Physical features
- 4.2 Natural forest  
*(extent, composition, condition class, GHI etc. and reference to summaries from the national inventory included as appendices)*
- 4.3 Plantation forest  
*(extent, composition, condition- details of the national inventory and summaries of the relevant tables provided as appendices)*
- 4.4 Non timber forest product resources
- 4.5 Wildlife resources
- 4.6 Factors affecting the forest resource  
*(fire, encroachment, illegal felling, etc.)*

### SECTION 5: PAST MANAGEMENT FOR PROTECTION AND RESEARCH

- 5.1 Environmental protection areas
- 5.2 Biodiversity protection areas
- 5.3 Fauna protection
- 5.4 Fire protection
- 5.5 Research areas *(including PSPs)*

### SECTION 6: PAST MANAGEMENT FOR PRODUCTION

- 6.1 Timber production areas  
*(compartments, harvesting schedule, progress map, production levels over the last 10 years)*
- 6.2 Plantation production areas  
*(compartments, planting final felling and thinning over the last 10 years, other operations over the last five years, summary of production over the last 10 years)*
- 6.3 Non timber forest production (inc. bushmeat)  
current management, markets and opportunities, main results from NTFP survey, issue and control of hunting licences)

### SECTION 7 PAST MANAGEMENT FOR LOCAL PEOPLE



- 7.1 Domestic use rights
- 7.2 Revenue collected and distributed to owners in last 10 years
- 7.3 Cultural sites

## SECTION 8: INFRASTRUCTURE and ADMINISTRATION

- 8.1 Access roads, tracks, pillars, forest stations, FG posts, forest nurseries
- 8.2 FD responsible office and staffing
- 8.3 Income & expenditure ratios

## SECTION 9: CONCLUSION

- 9.1 Strengths and weaknesses of past management
- 9.2 Opportunities and threats to future management

**Manual of Procedures - Forest Resource Management in the HFZ**  
**MOP Section A - Strategic Planning**

**A2. Forest Reserve Management Plans**

**Instruction Sheet A2.10          Compilation of Part 2**

**1. Introduction**

1.1 The compilation of Part 2 of the management plan is outlined in this Instruction Sheet. This will be compiled by the regional planning team, the district staff and support from FMSC as required. The latter will be required to provide overlay maps of all the provisional management zones

**2. Structure of Part 2**

2.1 The composition of Part 2 of the plan can be varied in accordance with local conditions, however the regional teams are strongly recommended to use the following framework where relevant.

**PART 2: PROPOSALS FOR FUTURE MANAGEMENT**

**SECTION 1: GOAL OF FOREST RESERVE MANAGEMENT**

**SECTION 2: BENEFICIARIES of FOREST RESERVE MANAGEMENT**

- 2.1 The national interest
- 2.2 The resource owners

**SECTION 3: GENERAL OBJECTIVES AND ZONATION OF THE FOREST RESERVE**

- 3.1 Protection objectives and zones
- 3.2 Production objectives and zones
- 3.3 Beneficiary objectives and zones

**SECTION 4: MANAGEMENT FOR PROTECTION**

- 4.1 Hill Sanctuaries
  - 4.1.1 Measurable objective
  - 4.1.2 Management regime
  - 4.1.3 Management prescriptions
  - 4.1.4 Rights and responsibilities
- 4.2 Swamp Sanctuaries
  - 4.2.1 Measurable objective
  - 4.4.2 Management regime
  - 4.4.3 Management prescriptions
  - 4.4.4 Rights and responsibilities
- 4.3 Provenance protection areas
  - 4.3.1 Measurable objective

- 4.3.2 Management regime
  - 4.3.3 Management prescriptions
  - 4.3.4 Rights and responsibilities
- 4.4 Special biological protection areas
  - 4.4.1 Measurable objective
  - 4.4.2 Management regime
  - 4.4.3 Management prescriptions
  - 4.4.4 Rights and responsibilities
- 4.5 Cultural Areas
  - 4.6.1 Measurable objective
  - 4.6.2 Management regime
  - 4.6.3 Management prescriptions
  - 4.6.4 Rights and responsibilities
- 4.6 Research Areas
  - 4.7.1 Measurable objective
  - 4.7.2 Management regime
  - 4.7.3 Management prescriptions
  - 4.7.4 Rights and responsibilities
- 4.7 Fauna Protection Areas
  - 4.8.1 Measurable objective
  - 4.8.2 Management regime
  - 4.8.3 Management prescriptions
  - 4.8.4 Rights and responsibilities
- 4.8 Fire Buffer Zone
  - 4.9.1 Measurable objective
  - 4.9.2 Management regime
  - 4.9.3 Management prescriptions
  - 4.9.4 Rights and responsibilities
- 4.9 Fire Shelterbelts
  - 4.10.1 Measurable objective
  - 4.10.2 Management regime
  - 4.10.3 Management prescriptions
  - 4.10.4 Rights and responsibilities
- 4.10 Convalescence (and Enrichment) Areas
  - 4.11.1 Measurable objective
  - 4.11.2 Management regime
  - 4.11.3 Management prescriptions
  - 4.11.4 Rights and responsibilities

## SECTION 5: MANAGEMENT FOR PRODUCTION

- 5.1 Timber Production Area
  - 5.1.1 Measurable objective
  - 5.1.2 Management regime
  - 5.1.3 Management prescriptions
  - 5.1.4 Indicative levels of production
  - 5.1.5 Rights and responsibilities
  
- 5.2 NTFP Production
  - 5.2.1 Measurable objective
  - 5.2.2 Management regime
  - 5.2.3 Management prescriptions
  - 5.2.4 Indicative levels of production
  - 5.2.5 Rights and responsibilities
  
- 5.3 Plantation Production Area
  - 5.3.1 Measurable objective
  - 5.3.2 Management regime
  - 5.3.3 Management prescriptions
  - 5.3.4 Indicative levels of production
  - 5.3.5 Rights and responsibilities
  
- 5.4 Conversion / Plantation Development Area
  - 5.4.1 Measurable objective
  - 5.4.2 Management regime
  - 5.4.3 Management prescriptions
  - 5.4.4 Indicative levels of production
  - 5.4.5 Rights and responsibilities

## SECTION 6: MANAGEMENT FOR LOCAL PEOPLE

- 6.1 Revenue from forest reserve management
  - 6.1.1 Measurable objective
  - 6.1.2 Management regime
  - 6.1.3 Management prescription
  - 6.1.4 Indicative levels of revenue
  - 6.1.5 Rights and responsibilities
  
- 6.2 Access to forest products for domestic use
  - 6.2.1 Measurable objective
  - 6.2.2 Management regime
  - 6.2.3 Management prescription
  - 6.2.4 Indicative levels of production
  - 6.2.5 Rights and responsibilities

## SUPPORTING MAPS

*[note the scales mentioned relate to the accuracy of the source material. Since the information is to be recorded in digital format within a GIS, it is theoretically possible to produce the maps at any desired scale]*

1. Location map [100,000 scale]
2. Reserve boundaries, administrative boundaries, main rivers, settlement centres [50,000]
3. Protection zones:
  - Hill Sanctuaries [1:50,000]
  - Swamp Sanctuaries [1:50,000]
  - Provenance protection areas [1:10,000]
  - Special Biological Protection areas [1:10,000]
  - Synthesis of high fire risk area [1:50,000 ]
  - Shelterbelts [1:20,000]
  - Cultural/sacred areas [1:10,000]
  - Research areas [plus PSPs] [1:10,000]
4. Production zones:
  - Past compartment map [1:20,000 scale]
  - Progress map [1:20,000]
  - New compartment map [if different] with harvesting schedule [1:20,000]
  - Special NTFP collection areas [1:20,000]
  - Regenerating forest areas (Convalescence) [1:20,000]
  - Conversion Areas/ Plantation development areas [1:10,000]
  - Plantation Production Areas (compartment maps) [1:10,000]

Note: the above information will be held in FMSC in the form of GIS overlays. In order to minimise the number of maps that need to be referred to by the manager, it would be expected that a combination of the above themes would be used in such a manner as to reduce the separate sheets to a minimum without compromising clarity.

**Manual of Procedures - Forest Resource Management in the HFZ**  
**MOP Section A - Strategic Planning**

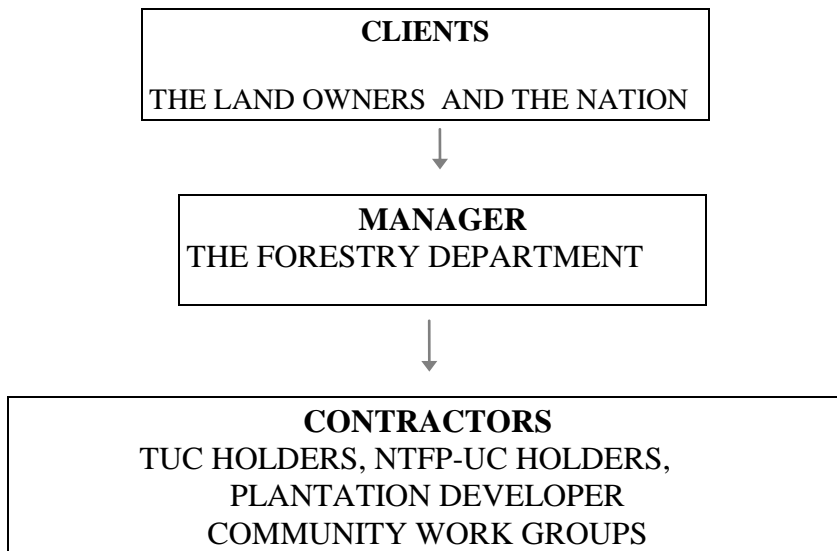
**A2. Forest Reserve Management Plans**  
**Instruction Sheet A2.11    Compilation of Part 3**

**1. Introduction**

1.1 Part 1 and Part 2 will form the main part of the plan. However there should be final section which lays out the method of implementation of the plan and in particular to clarify the management and financial responsibilities of the Forest Service acting as the manger of the forest on behalf of the landowners and the nation.

1.2 Furthermore, the monitoring and reporting procedures need to be stated and the targets for achievement spelt out. At this stage detailed operational planning is not required, that is carried out for intervals of five years and follows on after the strategic planning process has been completed.

1.3 Once the strategic objectives of forest reserve management have been established, the manager will carry out programmes of operations to deliver the objectives to the clients to the agreed standards. Some operations such as timber harvesting will require the manager to engage the services of contractors. Other activities such as boundary clearing and maintenance of fire breaks could be carried out on an annual contract with local community work groups. The establishment of this new relationship between the manager, client and contractor is critical to the successful operation of the new reserve management system:-



**2. Outline of the Structure of Part 3**

2.1 Below is a suggested structure for Part 3:-

## Administration and Finance

### **PART 3: PROPOSALS FOR IMPLEMENTATION**

#### SECTION 1: ADMINISTRATION AND FINANCE

- 1.1 Infrastructure development and maintenance
  - 1.1.1 Types of Activity
  - 1.1.2 Operational Arrangements
- 1.2 Reserve/FMU administration
  - 1.2.1 Responsibilities
  - 1.2.2 Operational Planning Process
- 1.3 Reserve finance
  - 1.3.1 Objective
  - 1.3.2 Financial agreement

#### SECTION 2: MONITORING and REVISION

- 2.1 Monitoring system
  - 2.1.1 Objectives [accountability, transparency, assess progress]
  - 2.1.2 Parameters/indicators.
  - 2.1.3 Records and reporting
- 2.2 Procedures for revision of the plan

2.2 The plan will need to detail the method to be used for administering the area and set out the overall responsibilities of the Forest Service and the community/land owners in terms of resource management and financial accountability.

2.3 Since the Forest Service is not going to have access to a continuous pool of labour, most maintenance work will be carried out using contract labour. Much of this work could be undertaken in collaboration with the local communities living around the reserve - such arrangements would have the benefit of ensuring that revenue generation stays within the area and gives a greater incentive for the communities to protect the reserve. For the large scale developmental operations - Timber production and plantation development - the Forest Service would intend to use contracts awarded on a competitive system. The local communities would have the right to take up such contracts provided they were able to meet the standards required.

2.4 The DFO as the manager of the reserve/FMU will be required to prepare an operational plan covering a five year period. This will synthesis the work to be carried out over the next five year period and will therefore require the setting of priorities. Such a plan would need to be roughly costed and incorporated into the Annual Programme of Works for the district. The community would be expected to approve such a plan (reference should be made to MoP Section B)

2.5 The management plan will need to spell out the arrangements for the return of revenue to the land owners and the proposed level of management fee to be deducted by the Forest Service. Methods of recording this information will need to be detailed and the endorsement to the financial arrangements would be needed as part of the consultation process. Annual accounts would be part of the standard annual reporting procedures (see below)

### Monitoring

2.6 For a strategic plan to have any real value, there must be a series of well defined targets and indicators of achievement in order that the management abilities of the Forest Service can be judged. All plans are subject to revision and amendment and the need for such revision will be made on the basis of how well targets have been achieved. For the forest reserve management plans the following indicators will be appropriate:-

1. Have all the management zones been maintained in accordance with their original boundaries?
2. Have all the prescriptions been adhered to ?
3. What has been the incidence of fire - has there been a measurable reduction in the incidence of fire and the level of damage?
4. Has the timber production area been leased out in accordance with a recognised TUC agreement?
5. Has the contractor fulfilled the conditions of the TUC in terms of the Social Responsibility Agreements and payment of royalties?
6. Has the Forest Service provided annual statements of the income and expenditure for the reserve and ensured that the full financial entitlements of the community have been handed over in a satisfactory manner?
7. Have there been regular meetings between the Forest Service and the community representatives on matters of mutual interest.?
8. Has the number of disputes between the Forest Service and the communities and any contractors been kept to an acceptable level and showing no annual increase?

2.8 The DFO should be in a position to summarise the main information that will answer these questions for each **reserve** under his control on an annual basis.



**BOX 1**  
**OUTLINE OF FOREST RESERVE ANNUAL**  
**REPORT**

1. Protection Activities
2. Production Activities
  - TUCs in Operation
  - Compartments being logged
  - Deviations (if any) from plan
  - Volume of timber felled and extracted
  - Statement of royalty owed
  - Statement of Royalty collected
  - Statement of revenue disbursed to owners
3. Other income-generating activities
  - Details of products and quantities
  - Statement of income generated
  - Statement of Income disbursed
4. Activities by the Communities
5. Expenditure by Forest Service
  - Statement of Staff expenditure and Maintenance of  
Structures
  - Statement of operational expenditure
6. Summary of work achieved and income raised against targets
7. Conclusions on Progress and Problems encountered

Plan Revision

2.9 The strategic plan would only be revised if there was a major change in the state of the resources or overall management strategy that made such a revision necessary. However the plan should be regularly reviewed and those sections that are clearly out of date revised. As a rule of thumb, the strategic plan can be assumed to have a life of 20 years. It would probably need to be extensively revised if there should be new inventory or mapping exercise requiring a modification of the present zones.

2.10 The operational plan prepared for each reserve will be for a fixed period of five years.

**Manual of Procedures - Forest Resource Management in the HFZ**  
**MOP Section A - Strategic Planning**

**Part 2. Forest Reserve Management Plans**  
**Instruction Sheet A 2.12 The Consultation Process**

**1. Introduction**

1.1 The Forest Service manages the forest reserves on behalf of two clients: the resource owners and the nation. A portion of the revenues accruing to the resource owners from the harvesting of their resource will eventually be retained to pay for the implementation of the management plans. It is a legal requirement that the support of the resource owners is sought before the plan can be implemented. This instruction sheet explains the processes for formal consultation, review and endorsement.

1.2 Experience has clearly shown that unless the landowners are actively involved in the decision process, the plan and the forest itself will be seen to be government property and the communities will have little interest in protecting the resource.

1.3. There is a legal requirement for the consultation process as indicated in Part II of the 1998 Forest Act:-

The Forest Service is required to:-

- a) consult with relevant land owners, communities and District Assemblies regarding proposed management of resources in their areas;
- b) based on such consultations, prepare a draft management plan for every forest reserve or group of reserves to be managed as a unit;
- c) submit each draft forest reserve management plan to the Forestry Commission for review
- d) publicise every draft plan in order to obtain the support of the owners or users of the concerned lands and any concerned persons

**2. Overview of consultation process**

2.1 The basic steps in the process are:

- Early discussions with community leaders and the District Assemblies to inform them of the intention of carrying out the plan preparation and explain its scope (refer Instruction Sheet 2.2)
- Collection of basic information on the reserve including community rights (Instruction Sheet 2.2)
- Detailed consultations with forest user groups as part of the field reconnaissance process (Instruction Sheet 2.4)
- Distribution of the draft management plan to community leaders
- Reserve Planning Workshop to explain the zonation and management prescription being recommended
- Revision of the plan on the basis of suggestions received
- Distribution of the amended plan and second workshop if considered necessary
- Endorsement by representative of the land owners and District Assemblies

### 3. Reserve Planning workshop

3.1 The most efficient way of consulting the communities and involved groups is to organise a reserve planning workshop within the area. In those cases where the strategic plan is covering a series of separate reserves - it may prove necessary to hold such a workshop separately at each reserve - it will depend on the distance between the reserves and the number of communities linked to a particular area. Prior to the workshop the planning team should distribute copies of the draft plans to all the invitees.

3.2 The objectives of the workshop are to:

- Introduce the general concept of integrated forest reserve management to the resource owners, District Assemblies and selected stakeholders
- Present the plan, explain how proposals were arrived at and review it with the resource owners, District Assemblies, local FD staff and other stakeholders
- Invite comments and changes to the plan based on the local knowledge and aspirations of the resource owners and use the opportunity to gather key information on such matters as NTFP use and marketing processes etc.
- Reach a consensus on the forest reserve management plan [objectives, zoning and main prescriptions] with the resource owners and gain their support for its implementation.
- Agree on a programme to implement the plan
- Establish a monitoring system to oversee implementation and to provide for review..

#### Participants:

3.3 A suggested list of participants is given below, there will be local modifications:-

- All resource owners - paramount and stool chiefs
- Representatives of the concerned District Assemblies - in particular the Chairmen of the Environmental and Development Committees
- Representatives of all communities with user rights
- Representatives of each of the different interest groups, i.e.
  - Leading farmers
  - Timber contractors
  - Possible investors in plantations
  - NTFP collectors and dealers
  - Hunters

3.4 The workshop should be jointly organised by district and regional forestry staff ensuring that the technical officers working in the reserves are in attendance. Assistance from FMSC can be requested especially in the production of the maps and to provide advice on the presentation of the findings.

#### Preparations

3.4 The planning team will need to put together the following materials:

- large scale outline map (1:10,000 -25,000 scale) depicting the reserve(s) boundaries, the key approach roads and any utilisable tracks within the reserve. The same map can be used to depict the extent of the Hill Sanctuaries
- overlays of all the protection zones (ideally as a series of transparent overlays at the same scale as the base map)

- overlay of existing compartment map and progress map
- production zones
- compartment maps of the plantations
- convalescence and possible conversion areas
- copies of the draft management plan

### Activities

3.5 Below is an indication of the programme and activities to be covered in such a workshop. Expanded guidelines on organising such a workshop are available from FMSC.

- 1) Opening ceremony
- 2) Expectations of the workshop
- 3) Workshop overview: state of the nations forests and new policy
- 4) Workshop objective
- 5) Importance of planning and the role of the forest reserve management plan
- 6) Review of part 1
- 7) Review of Part 2
- 8) Review of Part 3
- 9) Evaluation of comments received
- 10) Proposed timetable for modifications etc.

3.6 The timetable for such a meeting is difficult to predict, but matters should not be rushed and a time range of 1-4 days should be allowed depending on the complexities of the area.

3.7 In making the presentations there are certain key points and issues that will be common to most reserve plans that should be got over to the audience, for example:-

- The critical change in the type of management now being put into practice and the changes in the forest law that have been made to empower these changes. The role of the Forest Service as the manager meeting the needs of its clients, and hence the acceptance of accountability.
- National interest in protected areas - the large grained protection areas serve a need outside that of the immediate land owners and changes to the extent of these zones could only be considered if the workshop was able to demonstrate an overwhelming reason for such a modification
- Community needs *vis a vis* the type and location of NTFP collection areas. The sort of traditional controls that are relevant. The local interest in NTFPs and the importance to local income including hunting.
- Clarification on the location of culturally sensitive areas and the restrictions to be imposed
- Experiences of past logging activities and the views on the extent of the timber production areas. Forest staff will need to outline the levels of production to be expected and any initial plans for TUCs. The opportunity should be taken to explain the TUC system and the controls that are being put into place. Limited attention could be given to the type of Social Responsibility Agreements that would be required.
- Level of interest in plantation activities should be gauged. The Forest Service staff should provide an indication of the level of production expected from the plantations and the sort of areas likely to be available for Plantation Development Areas.
- Interest by local groups in undertaking forestry operations on a contract basis
- History of fire damage and the reasons. Suggestions for its control and the possibility of recruiting volunteer watchers.
- Discussion of the SWOT analysis at the end of Part 1
- The monitoring process to be put into place and the reporting procedures

#### **4. Revision of the Plan**

4.1 Two members of the FS team should act as reporters of the meeting in order that all comments and possible changes are recorded. The DFO, the RFO or his deputy should go over the main points received before closing the meeting to ensure clarity of understanding. Minutes of the meeting should be made available as soon as possible and no more than 2 weeks.

4.2 Those changes that can be made should be completed quickly and the amended plan circulated whilst matters are still fresh in the participant's minds. If necessary, a second workshop might need to be called to explain the changes made. Such a meeting would likely be for 1 day only, unless the first draft was heavily criticised .

4.3 A formal endorsement will be required from the representatives of the land owners and the representatives of the District Assemblies before the plan can be forwarded to the Forestry Commission .

## **Forest Resource Management Planning in the HFZ Section A - Strategic Planning**

### **A3. District (and Regional) Forestry Development Plans**

#### **Instruction Sheet A3.1 Introduction to the Plans and their Preparation**

##### **1. Introduction**

1.1 The Environmental Committees of the District Assemblies will in future have the responsibility for ensuring that a District Forestry Development Plan is prepared for a five year period and regularly updated. The District Assemblies have a right (see below) to request assistance from the Forest Service on completing this task.

1.2 The direct responsibility for ensuring that this work is done will be the RFO, but it is expected that the bulk of the work would be delegated to the respective DFO working as a part of a team alongside representatives of the local authorities, other agencies, NGOs and local interest groups. Much of the work off-reserve will be beyond the expertise of the DFO e.g. trees in farming systems.

1.3 The district planning process is an opportunity to explore the potential for forestry to support the development aspirations of the district. For instance, forestry can help maintain soil fertility for agriculture, it can generate revenue for community development projects and it can supply wood for rural forest-based enterprises.

1.4 The strategic planning process will examine the forest and timber resources of the area and the requirements of the local population for forest products and forest resources in support of district development aspirations. Strategic objectives and programmes to be pursued in order to develop the forestry potential of the area will be formulated.

1.5 In formulating the plan, the DFO will need to combine

- a) all the forest reserve management plans for the area;
- b) agreed and proposed TUCs off-reserve;
- c) the local forestry development programmes identified during the strategic planning process such as reforestation, dedicated forests, agroforestry initiatives, fallow management, NTFP production, fire control and the development of forest-based enterprises.

##### **2. Overview of the Planning Process**

2.1 The district forestry development plan will be part of the overall development plan for the district and as such it will require to fit into the format used for compiling the other sectors. The format for the plan may therefore be subject to district variations. Such plans are required at intervals of five years.

2.2 It will be the responsibility for the Chairman of either the District Environmental Committee or the District Development Committee to oversee contributions from each sector and to ensure that all contributions fit into a unified plan.

2.3 The plan should be seen to be strategic in content - providing guidance on the direction of development within the district and setting priorities for each sector and laying down the basis for mutual support between the various natural resource agencies. The plan should avoid becoming too enmeshed with operational details, since detailed breakdown of activities and the required budgets

will be dealt with at a later stage during the preparation of the DFO's Three Year rolling Plan and the Annual Programme of Works (refer MoP Section B). Figure 1 details the links between the two stages (refer Instruction Sheet 2.1)

2.4 The planning process will be a participatory one; different agencies, authorities and interest groups will be encouraged to form a planning team and to consult as widely as possible. Under the guidance of the Forest Service, the team will analyse the resource situation from available data (such as off-reserve inventory reports, and the reserve management plans) backed up by field visits.

### **3. Structure of the Plan**

3.1 The plan will need to cover the following aspects:-

#### Forest Resources and Production

- The total extent of the forest resources within the district - on reserve and off-reserve
- The extent of timber production areas identified on-reserve
- The present and future (5 years) situation with respect to TUCs on reserve and off-reserve
- The AAC for the district on reserve and off reserve
- The current and projected (5 year) level of permits
- The extent of plantations within the district on-reserve
- Their projected cut
- The area of plantation development areas believed to be available on-reserve
- The potential for off-reserve plantation development
- The present extent and potential for Designated Forests.
- Interest (on-going), or likely in the future, by investors in plantation development

#### Industries

- The number and distribution of timber industries within the district
- Their capacity versus current harvesting volumes
- NTFPs collection and marketing
- Potential developments

#### Extension and Farm Forestry

- Forest nurseries, demand and sales, seed supplies
- Community planting programmes
- NGOs, schools, community groups involved in forestry, agroforestry activities
- Potential developments

#### Environmental Problems

- Fire
- Illegal logging and controls
- Encroachment
- Critical areas identified for afforestation
- Potential developments

#### Administration and Cross-sectoral links

- Staff and resources of the Forest Service
- Revenue generation within the district and distribution
- Operating costs of the Forest Service
- Operational strengths and weaknesses
- Proposed changes and developments

3.2 The bullet points provide guidance only and will need to be adapted to suit the needs of the district and the particular directions of the district assemblies

#### **4. Preparation of the District Plan**

4.1 The DFO will need to refer to all the forest reserve management plans that have been prepared in order to summarise the main information on forest resources and production levels. For those plans that have been through the full planning process there will be 5 year Operational Planning Annexes for each reserve providing priority work to be carried out within a five year time frame. (Unfortunately there is no guarantee that the five year period of the forest reserve plans and the district development plans will coincide).

4.2 For those reserves where TUCs have been formulated and awarded, TUC Operational Plans (five years) will have been prepared as part of the operational procedures. Similarly for off-reserve TUCs, five year plans should be available (refer the Logging Manual for details).

4.3 For those DFO operating without a functional strategic management plan or indeed operational TUCs, estimated production can still be calculated on the basis of the national forest inventory data coupled with projected harvesting schedules. In such circumstances, DFOs may need to seek the advice of their RFOs and the FMSC.

4.4 In order to objectively analyse the priorities for extension activities and assess the relative importance of critical areas requiring afforestation inputs, the District Assembly will ideally need to conduct a series of field reconnaissance visits to supplement any reports from Technical Officers or community leaders on development proposals. The district planning team will attempt through local meetings and surveys to identify and rank the contributions forestry can make to district development.

4.5 The plan should attempt to fix priorities for potential development work and an indicative cost, leaving detailed costing to the 3 year Rolling Plan (refer MoP Section B).

#### Approval of the Plan

4.6 The draft plan should be presented to a district workshop run on similar lines to that for the strategic planning workshop for forest reserves. The participants should include traditional and local government authorities, government agencies, NGOs, farmers groups and TUC holders.

4.7 The plan should be reviewed by the RFO before forwarding to the District Assembly. After approval by the District assembly and incorporation into the District Development Plan, the plan should be copied to the RFO bringing to his attention any changes that have been requested by the Chairman and his committee.

#### **5. Preparation of a Regional Plan**

5.1 As an extension to the district planning exercise, regional staff may wish to amalgamate the district development plans into an overall regional plan, in order to gain an overview of targets for the forestry sector within the five year period. Some Regional Co-ordinating Councils may indeed request that this is carried out.

5.2 Under the Local Government Service Act, the Regional Co-ordinating Councils will be regarded as part of the Local Government Service and have a role of monitoring and co-ordinating development programmes. The region is expected to become the central focus for planning in the Forest Service with some of the roles of Planning Branch being devolved to the regional staff as their



capability increases. Below is a suggested format with some of the key headings that might be used for such a plan:

## **Regional Forest Plan**

### *1. Forest Resources*

- 1.1 on reserve
- 1.2 off reserve

A tabular summary of all the forest reserves indicating the regional totals of the various management zones. For the timber production zone a total indicative standing volume should be provided based on the TSP data and an indication of the sustainable cut.

Regional allocation for off-reserve felling (if available)

### *2. Forest Production*

Statement of the TUCs either in operation or under preparation broken down for on and off-reserve. A summary statement of the level of production achieved over the last five years, plus a tabular summary of the proposed level of production for the forthcoming five years from a synthesis of the existing TUCs.

Summary of NTFP production on a commercial or at least semi-commercial level

### *3. Industrial Development*

Statement of the capacity and disposition of the existing industries within the region and any firm proposals for expansion.

Major NTFP utilisation

### *4. Forest Plantations*

Summary of existing plantation resources

Proposals for expansion

### *5. Revenue Production*

Tabular statement of the district incomes over the last five years and projected income from timber, plantations and NTFPs.

### *6. Fire and Environmental Protection*

Description of level of losses from fire, forest pests and illegal felling

## **6. Monitoring and Indicators of Achievement**

6.1 On an annual basis the RFO should be in a position to report to the Regional Co-ordinating Director and the Council, as well as to HQ, on the level of success that the Forest Service is having in fulfilling its management duties. The format of such a report should include:-

### **Forest Management**

Number of reserves with and without vetted harvesting schedules. Comparison to previous year.

### **Timber Production**

#### On-reserve

Tabular statement by districts of the total timber extracted for current year and (for comparison) the previous year. Comparison to figures within regional plan.  
TUCs in operation plus the area and number of TUCs not yet taken up  
Area under logging for current year c.f. previous year, plus target for next year

Off -reserve

Number and area of operational TUCs

Identified TUCs still to be allocated

Tabular statement by districts of the total timber extracted for current year and previous year  
Comparison to figures within the regional plan

Plantations

New planting

Tabular statement of timber extracted by districts

Royalties

Income generation by districts -summary of level of actual disbursements to landowners

Comparison to regional plan

**NTFP Production**

District totals of commercial NTFP activities by quantity/value

**Protection**

Number and extent of fire damage for the current and previous year

Number of infringements and illegal activities reported

**Industry**

Although the Forest Service is not responsible for the state of the industrial sector, the report could present key facts i.e.

Number of mills/plants by district -significant changes through then year

Level of utilisation - comparison of TIF data (total tree volume) with LIF data (log volume) -