



TECHNICAL NOTE

No. 8

WORKING PLANS

Technical Note No. 8

WORKING PLANS

Section 1

8.1 Working Plans (or working schemes, planting schemes, regional plans, watershed plans etc. as the requirement in each case may be) shall be prepared for all forests (or areas) or group of forests under the management of Haryana Forest Department. In preparing and revising such plans/schemes, National Forest Policy and State Forest Policy shall be kept in view.

General

8.2 About eighteen months before the introduction of a new working plan or a revised plan, the territorial Conservator shall report to the Chief Conservator of Forests his views and those of any of his staff he may consult, the results of past working, the defects in existing plan/working, and proposed modifications which will have to be considered at the time of preparation of new plan/revision of plan. The Chief Conservator will examine the problem, discuss it with the territorial Conservator and then ask him to prepare a preliminary working plan report in considerable detail.

Initial Report

8.3 The principal object of the preliminary working plan report is to examine the results of past working to suggest how far the prescription of the past working plan may be continued and where and in what direction modifications, are necessary. In case of new working plans, this report will contain a short description of forests for which it is contemplated to frame a working plan, facts relating to their management, working and reproduction, the future treatment recommended, proposition regarding the basis on which it is intended to build the plan of exploitation and management (whether on area, or volume or volume cum area basis) and proposals regarding verification of area, formation of compartments, constitution of working circles and felling series, silvicultural system to be applied, enumeration of growing stock for calculation of yield etc. A small scale sketch map showing roughly the proposed working circles and any other information that can be included with the object of clearly setting forth the proposals for future working shall accompany the report. The report shall also suggest maps which should be prepared as a part of preparation or revision of plan.

Preliminary Working Plan Report

8.4 In the preliminary report, it is not obligatory for the territorial Conservator to make definite proposals for future management on all points covered by the report. If the past management has been satisfactory and can be continued without radical alterations, the territorial Conservator will be in a better position to make proposals for the future. Where the past management has not been satisfactory, he may be able to only offer comments, leaving it to the Working Plan Officer to make suggestions for

future management after detailed study in the field. The suggestions of territorial Conservator will be regarded as guide to the Working Plan Officer who may suggest modifications, if during preparation of the plan some alternative proposals are considered preferable. In the preliminary report, it will be clearly laid down what points are left for future consideration and what information will have to be collected by Working Plan Officer.

8.5 The report shall also suggest if the appointment of a whole time Working Plan Officer will be necessary and if so for how long and what staff if any would be required and how much can be spared from the territorial circle concerned. The report shall also specify the equipment proposed to be given to the Working Plan Officer and his parties and recommendations as to how the expenditure is to be met and what equipment can be spared from the existing stocks.

8.6 In short the preliminary working plan report will be the working plan itself in miniature leaving only the details and comprehensive presentation of the subject to the Working Plan Officer.

8.7 The territorial Conservator shall submit the preliminary report to the Chief Conservator in good time, calculating very carefully that preparation and final sanction of the working plan is possible before the period of the existing working plan expires. For any areas or forests taken over for the first time or those not under any working plan, it shall be obligatory to ensure that these are brought under some kind of working plan however simple it may be. The territorial Conservators are responsible to see that all areas within their circle are under working plans and that sanction of the competent authority exists for areas not to be brought under working plans.

8.8 The Chief Conservator of Forests shall pass appropriate orders on the preliminary report after consulting Working Plan Conservator if necessary. The report as approved by Chief Conservator will remain binding for the preparation of working plan. If after detailed inspection of forests and examination of relevant material the Working Plan Officer considers modification of a specific point necessary he will submit a detailed report to Chief Conservator of Forests through Working Plan Conservator and territorial Conservator. The modification will be included if approved by Chief Conservator. Similarly points on which decision has been left over for future consideration will be submitted and got sanctioned by the same procedure.

Section 2—Personnel

8.9 The staff for each working plan will be decided by the Chief Conservator of forests while conveying the approval of the preliminary working plan report. Normally the following staff will be provided,

- | | |
|-------------------------------|---------|
| 1. Working Plan Officer | .. One |
| 2. Forest Ranger | .. One |
| 3. Deputy Ranger or Foresters | .. Four |

Appoint-
ment of
Working
Plan Staff

- | | |
|------------------|---------|
| 4. Forest Guards | .. Four |
| 5. Stenographer | .. One |
| 6. Peons | .. Two |
| 7. Dak runners | .. Two |

Most of this staff will be provided from territorial circles after taking whatever working plan duty staff is available in Working Plan Division. Typing and Map work will be done in the Working Plan Division.

8.10 The preliminary working plan report will be the instructions to the Working Plan Officer regarding the preparation of the working plan. His duty will be to obtain all the necessary information from the territorial Divisional office for the preparation of part-I. He will carry out the necessary field work, will describe and allot compartments to working circles, felling series etc., as necessary. He will also do the stock mapping into species, age classes etc., and during the course of his field work, will investigate growing stock and increment.

Duties of
the Work-
ing Plan
Officer.

8.11 It is absolutely essential that a spirit of co-operation and mutual assistance should prevail between the Working Plan and the Divisional staff. The Divisional Forest Officer will furnish the Working Plan Officer with relevant records to enable the latter to obtain facts and figures. The Divisional Forest Officer will place accurate maps at the disposal of Working Plan Officer, seeing that all corrections of boundaries have been made and new roads and buildings entered. The Divisional Forest Officer will have statements of revenue and expenditure prepared, but the Working Plan Officer must satisfy himself that the statements are correct and contain all the necessary information. Statements of past yield will be obtained by the Working Plan Officer direct from the control forms and other subsidiary returns. The territorial Range Officer should meet the Working Plan Officer when the latter enters his Range and must afford him all assistance in starting field operations. The beat Forest Guard must accompany the Working Plan Officer and enumeration parties when work is proceeding in his beat. Transfers of local territorial staff shall be avoided when a Working Plan is in the course of preparation or revision.

Co-operation
between
the terri-
torial staff
and the
Working
Plan Staff.

Section No. 3—The Organisation of the Forest under Working Plans.

8.12 The Working Plan Conservator is responsible for the work of the Working Plan Officer. He will see that the field work is properly carried out that the allotment to working circles and periodic blocks is on sound lines and that the work is generally carried out accurately and expeditiously. The Conservator will supervise the writing of the plan and will correct and amend it at his discretion. He will see that the form of control is suitable and that the Compartment histories are in order.

Duties of
Working
Plan Con-
servator.

8.13 The first duty of a Working Plan Officer in the field is to examine his territorial units (blocks and compartments) and see that they are adequately demarcated and sufficiently sub-divided for purposes of the new plan, as outlined in the preliminary report. A clear grasp of the right position is absolutely essential. Existing compartment boundaries, names and numbers shall not be changed unless absolutely necessary, and in case of change, the Chief Conservator of Forests' sanction must first be obtained. In renumbering some definite order, as West to East or North to South must be decided on and observed throughout. Where it is necessary to sub-divide a well-known compartment, this should be done by breaking it up into sub-compartments. In this case the sub-compartments must be permanent units, clearly demarcated on the ground and shown on the map.

Boundaries

8.14 The maintenance of the external boundaries of the estate and of the boundaries of such interior private lands as have been excluded from the area of the legally notified reserved or protected forests is one of the first duties of the Executive Officer-Incharge (*viz.*, the Divisional Forest Officer). In order to ensure that this important work be attended to, it should be prescribed in working plans that a certain proportion of the length of boundary or portion of the estate shall be examined annually by a responsible officer, and any defects which may be brought to light rectified. During the course of the revision, the Working Plan Officer (and his staff) will have frequent opportunity of examining the demarcation and it is part of his duty to see that this is generally in order, failing which it is incumbent on him to report the matter to the territorial Conservator. Boundaries are demarcated in several different ways, the outer line with ditch and stone monoliths in the plains, while in the hills natural features, such as ridges and *nalas*, are frequently adopted. The boundary must be clear on the ground, the position of the pillars on the ground and their numbers shall correspond with the map, and usually each pillar shall be visible from the next one on either side.

Blocks

8.15 A forest block is either a natural division of a forest estate or is part of large tract of forest separated off either for purposes of the record of forest rights, when it is frequently designated as a settlement block, or for other administrative reasons. Forest blocks bear a local proper name and may be of any size.

Compartments.

8.16 A compartment is a territorial unit of a forest that is as far as possible homogeneous throughout its extent as regards soil, aspect and composition of the growing stock. The Compartment is the permanent working plan unit. It must be distinct on the ground and on the map. This latter point is of greater importance than the exact homogeneity of the crop it contains, but as far as possible each compartment shall be capable of treatment under one and the same silvicultural system and of inclusion in the same working circle. A compartment must be bounded by fixed lines, paths, streams, *nalas*, ridges or other readily ascertainable features.

Division of a forest into Compartments.

8.17 The division of a forest into compartments is the very foundation on which the structure of the detailed management is built up. This division into suitable compartments is the primary duty of the

Working Plan Officer. The size of compartments will vary with the intensity of the management. Compartments should be neither too small nor too big. A reasonable mean in the size of compartments must be maintained.

In irrigated plantations, as in Kurukshetra Forest Division, one full rectangle shall be taken as a compartment. Part of the rectangle shall be merged with the adjoining full rectangle for the purpose of division into compartments.

In strip forests where multiple rows can be planted, as in case of National Highways, main canals and distributaries etc., size of the compartment will be kept at five kilometres. Where multiple rows cannot be planted, as in case of link roads and minors etc., full length of the forest will be taken as a compartment.

8.18 Compartments shall be numbered separately for each block. It is important that the field staff must become acquainted with the numbers of the different compartments, and change in their numbers is not desirable. Compartments must, therefore, be numbered on the ground either by small engraved stones, numbered boards or by painted stencilled numbers on trees or any other suitable method. Compartments are numbered in Arabic numerals 1,6,24 and should be shown in black ink on the map. Where whole of the forest constitutes only one compartment, it will be numbered as "W".

Numbering
of Com-
partments.

8.19 A sub-compartment is a division of a compartment either permanent or temporary. Sub-compartments are made when it is desired to split up an old established compartment with a well-known number, or where the composition of the crop renders such sub-division necessary. The boundaries of sub-compartments are necessarily permanently fixed; they are generally shown by a colour wash in the map and designated with a small letter. Therefore, where forest blocks, exist, a particular sub-compartment would be designated as Kalesar, 31 a. In strip forests, portion of the compartment on the right side and left side of road, rail, canal etc. as the case may be, will be considered as sub-compartments and named as 'R' and 'L' respectively.

Sub-com-
partment.

In strip forests, the sub-compartment may be necessary to separate out areas with *kallar* soil or otherwise not available for tree crop.

8.20 A coupe is the area set aside for felling in a single year. It is used more especially in the case of simple coppice and coppice with standard systems. It is not a fixed geographical entity nor it is a permanent working plan unit like a compartment. Coups are given Roman numeral such as I, V, XI etc. where it is necessary to give them numbers.

Coupes

Section 4—The Organisation of the working plan.

8.21 A working circle is an area subject to one and the same silvicultural system and method of treatment and which can be exploited by a distinct series of operations. It may consist of one or more felling series. The number of working circles should not be unduly

The Con-
stitution of
Working
Circles.

increased. The greater the number the more complicated the control. Having decided on the silvicultural system or systems to be adopted, it now becomes necessary to allot compartments to working circles in accordance with the way in which it has been decided to treat them. The Board outlines of the working plan having already been laid down, the Working Plan Officer will consider the question of the allotment to working circles at the same time as he describes the compartments. In order that a working circle may be properly constituted it should contain crops of well defined age gradations. As, however, under present circumstances the distribution of the age classes is never normal, the Working Plan Officer must do the best he can with crops at his disposal and must make the best possible arrangements to obtain greater normality in the future. A working circle comprising forests under one and the same method of treatment, need not be in one piece in fact it is seldom so. As area is the foundation on which the constitution of the working circle and its management depends, it is essential that the whole or a allotted to the working circle or greater portion of the same should be capable of being managed and regenerated under silvicultural system being prescribed. When large areas of forest are included which are never proposed to regenerate, it will give an entirely wrong picture of the working circle. If any compartment contains appreciable areas of forest incapable of regeneration under the prescribed system, unproductive area may be formed into a sub-compartment and excluded from the working circle. In a working circle being managed under selection system, if some defined and limited areas require special prescriptions for regeneration or afforestation, it should be clearly indicated and areas shown on the map.

The constitution of felling series.

8.22 A felling series is part of working circle comprising a separate series of age classes. Felling series are constituted from the area of the working circle in order to provide a sustained yield of forest produce to one or more markets or to distribute forest works of all kinds over one or more ranges, although the constitution of separate felling series for this later purpose alone is not necessary. Each felling series is a self-contained unit of management with a separate calculation of the yield and a separate series of all silvicultural operations. Where there is a local demand for the produce, where rights have to be annually satisfied at a reasonable distance from the right holding villages and local grazing rights have to be met, in these cases comparatively small felling series will be indicated. Beyond what is necessary to comply with the above considerations the number of felling series should not be unduly multiplied. If too numerous, the number of separate operations become inconveniently great and the work of a given year is correspondingly scattered.

The allotment to periodic Block.

8.23 One of the faults in working plans is the incorrect allotment of compartments to period blocks. The first essential to a correct allotment is a reasonable sub-division into compartments. In many forests compartments are far too big. It is impossible to deal with compartments of 200 hectares. Compartments of not more than 40 hectares should be aimed at. In the irrigated plantations 20 hectares is the maximum. In making any allotment of compartment to periods, the orders of the Forest Settlement regarding closure to grazing must be given the fullest consideration. The Chief Conservator will not pass any allotment to periods under which the area to be regenerated cannot

be closed in accordance with the provisions of the Forest settlement. It is incorrect to concentrate large areas under regeneration at one place. It provides greater fire hazard; it is impossible to effectively stop the grazing, no local supplies of timber will be available once the area has been regenerated and the work of regeneration is not distributed amongst the staff. The allotment to periods should be scattered over the area of the working circle so that all areas allotted to P.B.I can be closed to grazing; thereafter the allotment will naturally follow as far as possible the distribution of the age classes on the ground. Where the regulation of the yield is based on area, it follows that areas allotted to periods must be net areas and where the question of quality classes is a factor of importance net reduced areas must be worked out for allotment.

8.24 The following standard diameter classes are prescribed for adoption throughout the State. All Working Plans will adopt these diameter classes :—

The
standard
Diameter
Classes.

Table of Standard Diameter Classes

Under 20 cm. diameter	V Class
20 cm. diameter and above upto but less than 30 cm. diameter				IV Class
30 cm.	Ditto	40 cm	—do—	III Class
40 cm.	Ditto	50 cm	—do—	II-A Class
50 cm.	Ditto	60 cm	—do—	II-B Class
60 cm.	Ditto	70 cm	—do—	I-A Class
70 cm. and above				I-B Class

8.25 Rotation is the pre-determined age of trees or crops at which when they are felled, objects of management are best served. Rotation really refers to even aged crops. As regards solitary trees or the individuals of a canopied crop considered singly, the age at which they become exploitable varies from tree to tree according to the special environment of each, and in such cases the exploitable size is of more importance than age. Nevertheless, in a selection forest a rotation calculated to produce an average exploitable tree must be determined for the purpose of calculating the yield, but this average tree will vary according to the different quality classes.

The deter-
mination
of the
rotation.

8.26 The first essential factor in determining rotation is economic considerations. It should produce a tree for which demand exists and the crop produced should show satisfactory financial results and provisions for employment. There is a notable contrast between the present situation and that which existed before hardwood pulping began. Formerly, sawalogs provided the bulk of forest revenue and the sawing technology was itself based on the size of tree produced on conventional rather long rotations. Today the advent of pulping and practices board manufacture has increased the incentive for forest owners to supply small sized material. In a man made forest, pulp mills, therefore,

appear long before sawmills as buyers of roundwood, and the demands of industry and the economy as a whole may mean that felling is advanced very considerably, thus implying a severe loss in long term wood production which has to be weighed against the advantage of developing outlets for the products of the forest resource as well as providing income for the local population. The second factor is, Physical conditions; that is, the productive capacity of the site and tree species etc. The criteria used to determine the rotation will vary with the objectives of management and it is, therefore, impossible to generalize about the way in which maturity is determined. Financial maturity will, however, be achieved when the current annual increment of the stand is just equal to the mean annual increment. Following rotations will normally be adopted in this State.

Eucalyptus	8 years
Kikar & Shisham Firewood	16 years
Sisham timber	48 years
Sal (4X30)	120 years
Chil	80 years

(4 P. B's of 20 years duration)

Increment
and grow-
ing stock.

8.27 Actual growing stock and current annual increment and mean annual increment must be worked out from field data. Greater attention should be given to the collection of this information so that yield can be correctly estimated.

Quality
Classes.

8.28 Working Plan Officer will allot all compartments to their respective quality class by the method of height over age or by measuring the heights of mature trees which have completed their height growth and comparing their height with the curve attached to the yield table. For the purposes of obtaining the age of standing trees, long increment borers will be used. Age of pole crop may be determined from trees felled in thinnings. In the case of plantation crop the age be correctly known from records.

Reduced
Areas.

8.29 The enormous difference in yield capacity between different quality classes renders it essential under certain circumstances when allotting areas of different quality to the various periodic blocks or when fixing the annual yield by area, to make due allowance for the difference in yield capacity if a sustained annual yield is required. In hills where, owing to the period of rights, periodic blocks have usually to be widely distributed over the area of the division, differences in quality will average themselves out and reduced areas may not be necessary. In the irrigated plantations reduced areas will always be used in arranging the annual coupes.

Volume
Table.

8.30 The Forest Research Institute have published volume table for various species, both in Standard stem timber and in commercial timber. Data will be collected to check their applicability. In case these cannot be adopted, local volume tables will be prepared.

For all purposes of yield calculation, commercial volumes are to be preferred to Standard volumes particularly in view of utility of small wood as pulp and demand for fuel.

8.31 In the case of the irrigated plantations the silvicultural system is best designated coppice or coppice with standard. It may be supplemented by artificial planting. In rest of the areas, other than chil forests and strip forests. Coppice with standard or coppice with reserve may be adopted. The essence of coppice with reserve system is intensive reservation of all financially immature trees and other growth required for silvicultural reasons provision of optimum growth conditions the reserved growth and coppicing of the remaining forest.

The Silvicultural system.

The uniform system is best suited for chil areas provided the allotment to periods is carried out in a reasonable way and the strictest attention is paid to departmental burning, cleaning, thinning and other measures of fire protection. Where the steepness of the hills inhibits any such system of working, the selection system is employed. It is laid down that any selection system must provide for normal regeneration and the proper distribution of the age classes, and that the executive must see that this is obtained otherwise the system degenerates into pure lumbering. Exclusion of regular grazing is essential to get and establish any regeneration under selection system.

In strip forests clear felling with some modification will be adopted. In case of multiple row plantations the first two rows will be treated as avenue rows and trees will be retained at a spacing of 6 metres. The trees to be retained in these two rows would be staggered to avoid look of a blank. The trees which have been retained in the first year will be removed in the next year when plantations would have established from the back rows. Any other row than these two avenue rows will be clear felled. In case of single row revenue plantation, gap not more than 10 metres will be created and the trees retained in first year will be felled in the second year. The method of regeneration in strip forests will be artificial plantations, full advantage being taken of coppice and natural seedlings of valuable spp, if any.

8.32 The material which counts against the prescribed yield derived from clear felling, regeneration-fellings or from trees which have reached exploitable size is called the final yield.

Definition of final yield

8.33 The general function of the regulation of the yield is to control the rate of removal of the existing crop so that the fundamental requirements of the silvicultural system may be fulfilled and future yields safeguarded. It may be calculated by various methods but it must be subjected to close examination both with reference to past yields and their effect on the growing stock. In all calculations of the yield, past and present growing stock must be discussed and the prescribed yield must be expressed in terms of volume. A forecast should be made of growing stock expected at the end of the period. In case of Selection Working circles, the distribution of the growing stock in every compartment must be considered and it is a great help to draw the curve of the actual growing stock as compared to the normal or rather to a curve representing a conception of what the normal may be. The Working Plan Officer, with the enumerations and the curve before him will assess the yield of every compartment both final and intermediate.

The calculation of the yield.

Section 8 Field work

Description
of a compartment

8.34 The description of compartments is one of the most important duties of the Working Plan Officer as on this description is based the allotment to working circles and periodic blocks. The description should be concise and should convey in as few words as possible an adequate idea of the composition, quality, age, density and general characteristics of the growing stock. In the hills a good idea of the contents of a compartment may be obtained from the opposite side of the valley, and this, supplemented with an examination of the interior compartment will enable an adequate description to be written. In the plains it is not sufficient to walk round the boundary of the compartment; and entirely wrong impression of the contents is often obtained in this way. It is absolutely necessary, in order to obtain a just appreciation of its contents, to traverse the compartment in at least two directions. As the division into compartments varies with the intensity of management, so will the description of compartments vary. In all areas under intensive management a complete description of compartment or at least a detailed description of the regeneration area is necessary. Elsewhere as for instance, the protection working circles, much greater attitude may be allowed, the compartments may be bigger and the description of a general nature. The description of compartments is entered in the compartment history which is the basis of the practical management of the compartment. Description should always be written on the spot and no reliance placed on memory.

In case of revisions, the Working Plan Officer will have descriptions of the previous plan to work on and these must be brought up to date. It should be possible to **correlate** and marked changes with the intervening history.

8.35 The description of compartments is carried out under the standard headings as given in the compartment history from viz.

Soil, situation, aspect.

Allotment to working circles.

Allotment to periods.

Description of the growing stock.

Quality class.

Enumeration results (if any).

Prescriptions of the Plan (Future treatment). A prescribed form containing the above information has to be filled up.

8.36 The quality of crop is obtained by taking the total height and breast diameter of average dominant mature trees. With experience, crops can be allotted solely by eye; it is necessary to check one's estimates with hypsometer and tape. When as often, the quality changes over a small area an average quality must be arrived at.

8.37 Density is generally judged by the eye. Only the main canopy need be considered. It is a useful check to compare enumeration results with one's ocular impressions, as regards not only density but also constitution.

8.38 Percentage of growing stock to be enumerated will be determined, in advance. Complete enumeration (and not partial enumeration) will be required for intensive management areas like avenue plantations.

Enumerations.

8.39 Standard diameter classes will be used for enumeration. Corresponding colours on enumeration callipers will be as follows:

V	Blac	Chota
IV	Green	Hara
III	Red	Lal
II-A	Yellow	Pilla
II-B	Black	Kala
I-A	White	Safed
I-B	Blue	Neela

8.40 The Working Plant Officer will generally decide how many gangs are necessary. He will also give orders as to what is to be included and distinguished in the enumerations.

8.41 A forest subordinate is generally put in direct charge of the enumeration work. He must be instructed to see that gangs work near each other, so far as possible, in order to facilitate control, and reduce the number of separate encampments. He must know the boundaries of each compartment or block to be enumerated and make them known to the gang leader in particular he has to see that sample and experimental plots are not wrongly included in the count. He is also responsible that every man carries an efficient tool, and above all that no gang lies idle. For this the progress of enumeration must be watched and fresh work planned ahead. Enumeration books and an abstract must be forwarded to the Working Plant Officer immediately an enumeration has been completed.

8.42 The Working Plant Conservator lays down the amount of check enumeration to be done. The subordinate directly in charge usually checks 10 to 15 per cent and the Working Plant Officer another 5 per cent of the total number of trees enumerated, and up to 2 per cent difference may be passed. Gangs must never check their own work, nor should anyone but the Working Plan Officer have access to the original figures. Re-enumeration should proceed in exactly the opposite direction to the enumeration so that scribe-marks face the advancing gang; these marks are then prescribed to form a cross. The number of trees found unscribed should be noted separately on the enumeration sheet. Enumerations must be carried out by quite small units and not by whole compartments. Results, of course, will finally be shown by compartments or sub-compartments, but the Working Plan Officer may often wish to sub-divide a compartment at the last movement after all enumeration work has been completed, and he will find it invaluable to have results separately for portions of the compartment. Such sub-division is also useful for subsequent checking.

8.43 The extent to which the growing stock is to be enumerated having been determined, it now remains to carry out this work. Of late partial enumerations varying from 5% to 20% have replaced complete enumerations for working Plan purposes. Partial sampling results and if carried out with full knowledge of fertility gradient and distribution of types, sub-types and quality classes, gives fairly accurate results for calculation of growing stock. In working circles organised on a periodic Block System and other areas under intensive management a complete enumeration of growing stock will be required. In forests, where yield is regulated by area, no enumerations are generally necessary, but in special cases where an accurate forecast of the probable out-turn is wanted enumeration will have to be carried out.

8.44 The actual counting of the trees is done as follows :—

Actual
method of
counting
trees.

Each recorder is given a book ruled in the standard diameter classes already mentioned and two or at the most three calliper men work with him. In the plains a couple of linesmen are also necessary. Starting from the edge of the compartment a strip of forest is taken along which the 2 linesmen walk tying bands of dry grass growing along the line, but keeping pace with the rest of the gang. The recorder takes up his position in the middle of the strip and calliper men measure at breast height and shout out the species and colour of trees on callipers. The recorder will enter each tree with a dot under its proper species and diameter class, and repeat by shouting back. After each tree has been measured it is given a spot of white wash or the dark is marked with a scribe to indicate that it has been recorded.

8.45 When the far end of the compartment of enumeration section is reached the line turns and measure a strip adjacent to the one already done. The marks on the trees counted should be placed on the side of the tree facing the direction in which the work will progress so that when working in any strip the marks on the trees of the last strip are clearly visible. In most cases a man carrying drinking water for the gang will have to be provided.

Division of
compartment
to be enumerated
into
sections.

8.46 Wherever possible the compartment to be enumerated should be divided by clear physical features such as ridges, nalas or paths into enumeration sections. The ideal section is one that can be counted in one day, so that it becomes possible for the officer responsible for the work to check the work of any one man in one day. Such check is absolutely necessary and the permissible error is a maximum of 2 per cent in number of trees counted. If this is exceeded the work of that recorder must be rejected and the man dispensed with. As a matter of fact, the percentage of error found on checking is normally less than two per cent. On completing each section or compartment the recorder hands his results over to the Working Plan Officer or the assistant in special charge of this work after signing the form. Recorders usually work in separate sections or compartments. If they have however been concentrated in one section they are spread out in a long line. This will be found of advantage on difficult ground as complete supervision by a responsible man is then possible. A standard day's task should be fixed by the Working Plan Officer and the work kept

up to this. Trees which fork below breast height are counted as two trees. The recorder must see that the calliper is properly applied to the bole, the long arm of the calliper should touch the stem and the measurements be taken as near 1.37 metres as possible. The calliper man stands on the upper side of the tree if on hilly ground. One diameter measurement suffices. Callipers must be checked from time to time. The Working Plan Officer is entirely responsible for the correctness of his enumerations and must carry out check enumeration to the extent prescribed.

8.47 Stock mapping is done usually on the one in 15,000 (4" to a mile) topo sheets and an abstract of the stock map of the compartment is pasted in the first page of the compartment history file. No standardised conventional signs exist as these depend largely on what local types, it is desired to show, and the Working Plan Officer should choose his own signs to suit local conditions, keeping in view standard directions for preparation of maps.

Stock maps.

8.48 It is important that the maximum amount of writing and typing work be done on tour, in particular the filing in and bringing up to date of compartment forms, the rough calculation of areas, the preparation of stock maps, etc.

Office work in the field.

Section 6—Writing up the Plan

8.49 A working plan has to describe the situation, present the argument for and against different courses of action and prescribe for the future. It is logical, therefore, to divide the Working Plan into two parts. The following are the standard working plan headings:—

The standard headings.

INTRODUCTION

Part I

Summary of facts on which the proposals are based

CHAPTER I

Name and situation [and map reference.

Configuration of the ground.

Geology, rock and soil.

Climate.

Water-supply.

Distribution and area.

State of the boundaries.

Legal position.

Rights and concessions.

The tract dealt with.

CHAPTER II

Composition and condition of the crop.

Injuries to which the crop is liable.

The Forest

Utilization
of the
produce.

CHAPTER III

Agricultural customs and wants of the population.
Markets and marketable products.
Lines of export.
Methods of exploitation and their cost.
Past and current prices.

Staff and
Labour
supply.

CHAPTER IV

CHAPTER V

Past systems
of manage-
ment.

General history of the forest.
Past system of management and their results.
Special works of improvement undertaken.
Past yield.
Past Revenue and Expenditure.

CHAPTER VI

Statistics of
growth and
yield.

(To include allotment to quality classes, mean, annual increment, current annual increment, yield table, volume Table etc.)

CHAPTER VII

Estimate of
Capital
value of the
forest.

Part II

Future management discussed and prescribed.

CHAPTER I

Basis of
proposals.

General objects of management and brief statement of treatment required to secure them:—

- (a) As regards the attainment of the normal forest and the establishment of normal regeneration.
- (b) As regards the silvicultural requirements of the species dealt with.
- (c) As regards the yield of timber and other forest produce.
- (d) As regards the improvement and regulation of the water supply : Methods of treatment to be adopted. Working Circle, their area and distribution reasons for their constitution.

Period of working plan and necessity for intermediate revision.

CHAPTER VI

General constitution of the circle and character of the vegetation. Blocks and compartment (permanent). Analysis and valuation of the crop. Method of treatment (exploitable size, choice of species, silvicultural system, calculation of the rotation, division into periods, allotment to periodic blocks, felling cycle, calculation of the yield). Method of executing the fellings. Tabular statement of felling to be made. Subsidiary silvicultural regulations (sowing, planting, singling of shoots in coppice and spacing in case of sowing and natural regeneration, weeding, cleaning, thinning and supplementary fellings). Other regulations (grazing, protection, exercise of rights and privileges, collection and record of statistics, and control including forms record and maps required here or generally).

Working Plan for Working Circle. (a separate chapter for each working circle).

CHAPTER

Miscellaneous regulations (prescribed and suggested).

Roads and other export works.

Departmental extraction.

Improvement of water-ways and water-supply and methods of exploitation.

Possible development of forest industries.

Buildings.

Maintenance of boundaries.

Surveys and maintenance of maps.

CHAPTER

Administrative units.

Establishment and labour

CHAPTER

Financial Forecast and cost of plan.

CHAPTER

Summary of prescription

Only those appendices required for the elucidation of the plan should be printed therewith.

General prescriptions under "other regulations" including the maintenance of control forms, records

Appendices.

and maps may be provided or in the chapters dealing with all working circles generally—

Although some overlapping is difficult to avoid, this should be reduced to a minimum. Facts and prescriptions should only be dealt with in the correct place.

PART I OF THE PLAN

General
Remarks.

8.50 This part deals with the forest as they exist at the time of writing the plan, and with their past history. Suggestions for future work are quite out of place and must be confined to part II.

Name and
situation
and map
reference.

8.51 The name of the tract dealt with in the report, generally, the civil district or territory in which it is situated, together with that of Forest Division to which it belongs, shall be stated. The vicinity of large towns or markets for the produce, or of rivers, roads, or railways leading to these places shall be very briefly mentioned here. Reference of topo-sheets covering the tract shall be given.

Configura-
tion of the
ground.

8.52 It should be explained whether the forests are situated in hilly or level ground, or on a plateau, whether they form part of one or several river basins, at what heights above the sea they are found, and what their relative position is with regard to the surrounding country.

Geology
Rock and
Soil.

8.53 Summarise the essential facts, the different geological formations, their position and extent, the soil produced, and especially the fact or influences of the geology and soil on the distribution of forest types, ecology, and quality of tree growth.

Climate.

8.54 The climate and soil together represent the productive capacity of the area or locality and determine the species and method of treatment best adopted to the result required. The character of the climate depends on the situation of a given locality, and is described by stating the different local peculiarities of the atmosphere as regards temperature, rainfall, degree of moisture, prevailing winds, etc.

Periods of drought or of excessive rain, of great heat or of cold dangerous winds and the like which have a notable effect on the forest vegetation or on fire protection, shall be briefly explained.

The points to be borne in mind when it is desirable to report in detail upon the climate of a given locality in addition to those noted in above paragraphs are, as follows :—

- (i) Slope, aspect, and topographical features generally.
- (ii) Temperature, maximum, minimum, and average at different seasons, periods of greatest heat and cold and their duration.
- (iii) Species which thrive in the locality and their peculiarities as regards climate.

- (iv) Usual state of the atmosphere, whether clear or the reverse, and its dryness or humidity at different seasons.
- (v) Rainfall, number of rainy days, mean-annual, and at different seasons drought and its duration.
- (vi) Wind and storms, their duration and force, damage done by them.
- (vii) Forest incidence and its effect on vegetation.

8.55 It is generally necessary, especially where the report deals with a number of scattered forests, to explain in a few words how the gross area is distributed. It shall also be explained how and with what degree of accuracy the forests have been surveyed, what maps exist, and how the areas have been ascertained. Changes of area as compared to past working plans or past records or due to settlement or resurvey will be fully explained.

Distribution and area.

8.56 This particularly refers to the boundaries of forests including interior or chalk boundaries. Conditions of boundary pillars and their depiction on maps will also be stated.

State of the Boundaries.

8.57 Detail regarding declaration of reserved and protected forests. Acquisition or transfer of area for management as forests will also be noted. Briefly mention resumed grants and any distinct settlements having a bearing on the existing status of the forests.

Legal position.

8.58 A clear conception of the extent and management of rights is essential both for the Working Plan Officer and subsequently for each new Divisional Forest Officer very soon after taking over their duties. Give a brief resume of the rights, position, their extent, nature etc., and a reference to the (subsequent) paragraphs of the Working Plan whereby they are regulated or met, and to the appendix where they are detailed or summarised.

Rights.

8.59 Briefly describe the forest by types, mentioning only the more characteristic species, give a general note on constitution, condition, density and age (size) of the crop. The types are to be described according to classification given by Champion and Seth.

Composition and condition of the crop.

8.60 Sub-heads are arranged according to the agents causing injury. It is only necessary, as a rule, to explain those causes of injury, such as breaches of the forest regulations, fires, grazing, climbers and other injurious growths, depredations by noxious animals, etc., which in practice may be prevented or restrained, and which have an important direct bearing on the forest management. A list of areas most liable to illicit grazing is useful.

Injuries.

8.61 In most instances the agricultural customs and the mode of life of local population have an important bearing on the management of the forests, both with regard to the direct supply of the wants of the people of forest produce and to the adoption of a system of management that will interfere as little as possible with established customs.

Agricultural customs and wants of the Population.

Such facts, where they influence forest management, shall therefore be briefly stated.

Markets
and market-
able pro-
ducts.

8.62 These are inter-dependent subjects and cannot be treated separately. It shall be stated what products of the forests are saleable, the purposes for which they are used, and the quantities of each sort consumed by different classes of the community or required to meet the general demands of the public. In preparing the plan a statement should, therefore, be tabulated from the records showing the quantities of produce exploited by Government agency, sold to purchasers direct, used departmentally, granted or sold at privileged rates to right holders and given as free grants.

Lines of
exports.

8.63 The roads or main export lines, passing through the forest or in its vicinity, by which the produce is conveyed to the markets where it is consumed, shall be mentioned, and the state of repair and adequacy of these roads shall be discussed.

Methods of
exploitation
and their
cost.

8.64 The manner in which the produce is extracted should be explained, and the cost of felling, transport, etc., should be given. Improvements will, of course, often be suggested with the object of reducing the cost. The establishment of new roads and the improvement of existing lines of export may be justified in this section.

Past and
Current
prices.

8.65 Include past and current prices of various forest products, giving reasons for decrease or increase, if any. A table showing rates of various forest products in the nearby markets should also be given.

Staff and
labour
supply.

8.66 The strength, duties and cost of the forest staff should be stated, and the adequacy or insufficiency, as the case may be, of the existing establishment commented upon. Where alterations are necessary, this should be stated and explained.

It should be said to what extent and what rates of payment it is possible to procure local labour and whether, at particular seasons of the year, there are difficulties with regard to the labour supply. Any other remarks they may appear desirable in connection with the execution of works in the forest should also be recorded under this head.

Past system
of manage-
ment and
their result.

9.67 The system or systems of management which have been followed in the past should be briefly discussed, with a view to prevent a repetition of such mistakes as have been made, and so that the present condition of the crop and the system of management actually in force may be better understood. This may necessitate some historical remarks brief enough to render the explanation intelligible. It will generally be necessary to explain fully and to criticise the system of management in force, pointing out defects observed in it, and justification of any changes that may be proposed.

Special
works of
improvement.

8.68 In most cases there will be works of improvement or construction regarding sowings or plantings, roads or bridges, and occasionally special operations may be required such as drainage or irrigation works, barriers to prevent the erosion of the banks of streams or Chos and so forth. All these may be described in this section in such detail

as circumstances require. In discussing cultural or other works of improvement undertaken in the past years, attention should be drawn to important results of experience so acquired.

8.69 Where the figures are available, the average receipts and expenditure for the past few years in connection with the whole area dealt with and, if possible regarding each class of forest in this area should be given. If no separate accounts are available an estimate may be made.

Past revenue and expenditure.

8.70 Include the statistics of growth, volume and yield of the main species occurring in the tract. The conclusions arrived at on the basis of data collected from the field will be discussed. Volume Table in vogue and to be used in the plan period will be given. MAI and CAI will be worked out wherever possible.

Statistics of growth and yield.

PART II OF THE PLAN

8.71 This part is written for and deals expressly with the future, management of the forest estate comprehended by the plan. It is, however, necessary to avoid prescriptions about purely executive matters. For example, a prescription that an area must be completely felled over in one season is permissible if it is held that a second year's fellings will endanger regeneration, but it is not permissible if the object is merely to provide sizable lot or to attract buyers or for any reason unconnected with the welfare of the forests. Again, the working plan must not lay down that something which requires a special order may be done with the sanction of any particular authority. It will merely say that such an act will not constitute a deviation, leaving the question of authority to the administration.

General remarks.

8.72 The object should be given such as the production of timber of a certain kind and size, fuelwood or pulpwood. In certain cases, as for instance, in water catchment areas and in hilly country, special attention should be paid to the necessity for the retention of forest cover with the object of improving and regulating the water supply and preventing erosion.

Objects of management.

The objects of Management are conveniently divided into :—

i. Ideal and ultimate.

ii. Real and proximate:—

(a) General for the division as a whole or area covered under the Working Plan.

(b) Particular as concerning different types of areas.

8.73 Give a list of the different working circles, showing how they meet the objects of management detailed above.

Allotment to Working Circle.

- 8.74 Mention the principles followed in allotting to each Periodic Block and whether any excess of age classes exists. A table should be given to show actual area allotted to each Periodic Block, the gross stocked and reduced area if worked out.
- 8.75 In case the felling series have been formed, the reasons for their formation may be given.
- 8.76 Includes the area under rights and summary of the "Detailed Area Statement" by ranges and blocks showing gross and stocked areas where these are known.
- 8.77 Trees which are to count against the yield usually comprise all marked trees of a given diameter and over of the species enumerated trees which are obviously unsound are excluded if they have also been enumerated. It is important for the Working Plan Officer to make it quite clear exactly what is and what is not to count against the yield.
- 8.78 Give a preamble stating the object and scope of the rules. These should not be too elaborate. Marking rules will be definitely laid down in the plan.
- 8.79 The Working Plan Officer must be careful to prescribe for carrying on cultural operations cleaning or other subsidiary operations rendered necessary by fellings made under the old plan, as well as under the new plan.
- 8.80 In view of intensive management, complete reliance on natural regeneration has been more or less abandoned. It should be clearly stated if tending of coppice and natural seedlings is required. Where artificial regeneration is to be resorted to the method of regeneration and planting programme may be detailed. It should be clearly stated if artificial regeneration is to be taken up only for filling up the gaps or is to form the main source for future crop.
- 8.81 Insert here any regulations regarding such matters as grazing, fire protection and the exercise of rights and privileges that specially affect the circle concerned. Compare this with the heading:—
- General Regulations and Recommendations, which comprises prescriptions and suggestions that embrace the whole division e.g. petty felling, disposal of minor produce. The regulation of rights and privileges is dealt with here.
- All plans should state the existing grazing rates current in the division and should also note any enhancement or alternation since the last plan, recording brief reasons for it.
- 8.82 It is not for a Working Plan Officer to prescribe changes in establishment, but suggestions are legitimate. In case new Beats, Block or Ranges are necessary for the implementation of Plan prescriptions, these may be suggested.

8.83 A standard prescription has to be incorporated here though modifications may be made under proper sanction. Details are given in Section 9.

Control
and Re-
cords.

8.84 Mention may be made here of general matters like experiments and sample plots which have no direct connection with ordinary divisional work. Problems like commercial grazing and forest villages and leasing out of forest land for temporary cultivation etc. may also be mentioned here.

Miscell-
aneous
Chapter.

8.85 The financial forecast should be forwarded to the Conservator of Forests, Working Plan Circle through the territorial Conservator for Chief Conservator of Forest, approval before the plan is faird out and while the Working Plan Officer is still on the spot. If the past and revenue and expenditure is carefully considered in consultations with the Divisional Forest Officer the effect of the Plan on finance should be capable of being fairly accurately estimated.

8.86 This is not a combined felling table for the division, but a brief resume of the prescriptions by working circles and paragraphs.

Summary
of Pres-
criptions.

8.87 These must be kept to a minimum.

Appendices

I. Most essential appendix is the area statement with headings approximately as follows.

		The area statement				
Range	Forest or Block	Comptt. No.	Area stocked			
			Gross	Principal Spp.	Blank	Total
Included Chalk		Allotment to Working Circles				
Name	Area.	Shelter Wood Working Circle.	Coppice with standard.	Coppice with reserve.	Selection Working Circle etc.	

in case of change of area it should be clearly depicted by adding suitable columns or by adding a separate appendix.

II. Enumeration results

Figures should be given by Compartments and for only such spp. and size which are to count against yield. Full details of enumerations are noted in the compartment histories.

III. Rules, Government Notifications, orders or agreements and leases which have bearing on the management of the forests.

IV. Statement of Rights :

Abstract of rights as given in the settlement record. In case the record is not very lengthy it may be reproduced as a whole.

8.88 Correct method of arranging and writing the plan

Pages are numbered from the beginning of Chapter I and are numbered consecutively through Part I and Part II. Paragraphs in each Chapter may have a continued number. Thus para 8.3 is 3rd para of Chapter VIII. Paragraphs and not page numbers should be mentioned in cross references. Following points may also be noted.

- (a) Type in block capitals any passages or sentences to be printed in bold face. This should be used sparingly.
- (b) Words to be printed in italics should be underlined.
- (c) Writing must be clear and concise. Avoid vague statements. As the preparation of the Plan proceeds, it will be the duty of the Working Plan Officer to obtain the approval of the territorial conservator and the Deputy Commissioner or Collector to any recommendations or prescriptions in his plan with which the Deputy Commissioner might subsequently have to deal. For instance, any modification of facilities to concessionists or any restriction to right holders or concessionists due to anticipated closures. Here all suggestions or prescriptions even remotely affecting the local villagers must receive Deputy Commissioner's approval before the plan is submitted.
- (d) The name of the working circle must be typed in full on the top right hand corner of each page of the draft chapters in part II which deal with definite working circle.

8.89 Introduction will be written by the Working Plans Conservator.

8.90 Glossary is to be an alphabetical list of local names used in the plan which may conveniently be classified under "botanical", and "Miscellaneous" headings. The local names have to be followed on the page on which they first appear by the Latin equivalents in brackets; the spelling and latest botanical names as issued by F.R.I. should be adopted. All local names not beginning a sentence must be typed and printed with a small initial letter, and both they and scientific names are to be printed in italics; the latter are now printed with small letters. Such English popular names as appear will be printed in Roman characters without a capital (e. g., silver fir, oak). Local names which have become widely known and used in the English language may also be printed in Roman characters without a capital, such as chir and deodar. All technical terms will be as defined in the "Glossary of technical terms for use in Indian Forestry."

8.91. These should be included wherever terms are used the meaning of which has not been established e.g., "regeneration", "reproduction".

Definitions.

8.92. There is a general tendency to adopt capitals unnecessarily. The following, are example indicating where they are and are not required :—

Capitals.

Ambala District,
Karnal Division,
Regular Working Circle,
Miscellaneous Working Circle,
Divisional Officer,
Range Officer,
Selection system,
Periodic block,
Working circle,

Though if any of the above is used as a heading by itself each word would be a capital.

8.93. In writing the working plan although a certain amount of over-lapping is unavoidable care must be taken to see that facts are not supplied at the wrong place. It is advisable for the Working Plan Officer to submit the first draft of his plan by chapters as soon as they are complete. These should be accompanied by a short explanatory note stressing any points of importance and drawing the attention of the Working Plan Conservator, to any deviation, however slight, from the preliminary working plan report or subsequent instructions.

Checking,
Passing and
despatch of
working
plan.

8.94. A single typed copy will first be made and after passing by the Working Plans Conservator, two final copies will be typed. The Working Plan Officer must check at least one of these himself and initial each page at the top right hand corner after necessary correction. Every sheet of the final draft, corrected from the "master copy" must be similarly attested by the Working Plan Officer. The Working Plan Officer will submit these two copies (including the original) to the Conservator, Working Plans. The original will eventually go to the Press and the other one will be used by the Conservator of Forests, Working Plans Circle, in his office until printed copies are available.

8.95 The Working Plan Officer is responsible for the correctness of all calculations, details, area statements, descriptions, and figures, etc., given in the working plan. The Working Plans Conservator will supervise the main structure and important prescriptions of the plan. He will correct and amend them at his discretion. When the master copy of the

plan is complete, it will be forwarded to the Chief Conservator of Forests for his approval. Afterwards the Civil authorities will be addressed under paragraph 766 (7) of the Land Administration Manual for countersignature and return of the Plan to the working plan Conservator for taking steps for printing and obtaining Government sanction. Sufficient copies of the first proof will be obtained from the press for the Range Officers concerned to work on till final copies are received. This will be necessary only if the final printing of the plan is likely to be delayed beyond the date from which it is to be brought into force. One copy of the proof is to be sent to the author for check and return to the press through the Working Plans Conservator.

Powers of the Chief Conservator of Forests, to sanction Working Plans for the Soil Conservation Circle. Alteration in the Plan.

8.96 In the Deputy Secretary to Government, Punjab's letter No 2320/Ft. dated the 19th August, 1942, the Chief Conservator of Forests has been authorised to sanction all working plans for the Soil Conservation Circle or Soil Conservation area. He may, however, refer to Government any working plan, in which any question of principle or special interest is involved. All other plans require the sanction of Government.

8.97 Once a plan is sanctioned, its provisions must be carried out until it is revised or amended by the Chief Conservator of Forests. Intermediate amendments of the Plan, very often made without thoughts or due consideration of the results of such amendment, have in the past resulted in much harm and such proposals are to be discouraged.

Section 7—Compartment Histories

Compartment Histories or Forest Journals.

8.98 The compartment history or forest journal is a record of the past and present history of the Forest. The unit for which a separate history will be maintained depends upon the intensity of forest management and will be fixed by the Working Plan Officer with the previous approval of the Conservator Working Plans Circle. It will consist of a register in which a number of pages will be allotted to each block of forest or compartment, or of separate files for each block, forest or compartment, this depending on the type of forests dealt with and the nature of the entries to be made. The actual form and the scope of the compartment history or forest journal necessarily differ with each working plan and will be prescribed by the Working Plan Officer with the previous approval of the Conservator, Working Plan Circle. A compartment history or forest journal will ordinarily contain the following essential information which may, however, be modified to suit the special requirements of a working plan:—

- (i) A tracing of the 1 in 15000 (4"—1 mile) forest survey map of the compartment or forest or block of forests concerned *i.e.* for the unit for which compartment history or forest journal is prepared.
- (ii) A tracing of the stock map for the compartment forest or block of forests concerned.
- (iii) A complete description of each forest or compartment under the standard headings, *viz*—

- (1) situation, boundaries, elevation, aspect, slope, soil, allotment to working circle and area.
- (2) description of the growing stock, locality quality class, details of enumeration and working plan prescriptions.
- (iv) Communications and the fire conservancy proposals, and rates miscellaneous notes on timber and grazing rights, carrier routes, etc etc.
- (v) A brief record of the past history of the crop bearing on the management and improvement of the forest, and as work proceeds ;
- (vi) Useful notes on marking, seed years, observations on the progress of regeneration both natural and artificial, suitability or otherwise of the prescribed system of management, outbreaks of fires and other note worthy occurrences.
- (vii) Statement of trees felled and materials extracted annually by all agencies (Forest Journals Exploitation Control Forms A and B).
- (viii) Statements showing year by year progress of regeneration with details of silvicultural operations such as debris clearing and burning, sowing, planting, fencing, weeding and cleaning with their cost on a suitable form (Regeneration Control Form C). These control forms have been standardised and approved by Government.

8.99 A record of every fire, whether accidental or intentional, but exclusive of areas burnt annually for protection of adjoining areas, will be kept in the compartment has been burnt a tracing of the area burnt will be attached to the compartment history unless the Divisional Forest Officer considers that a general statement is sufficiently explanatory. These compartment histories are for record of results rather than for control; they will not be submitted for check with annual control forms, but the territorial Conservator will see that they are kept up properly.

Fire
Records.

8.100 Compartment histories or forest journal form an integral part of the system of control. They will be prepared or revised by the Working Plan Officer in duplicate, one set for the use of the Range Officer, and the other for the Divisional Forest Officer.

The Range Officer's copy is intended for use in the field and will be the working copy in which the Range Officer and gazetted inspecting Officers will record their observations and notes. At the close of every year, the Range Officer will send his set of compartment histories to his Divisional Officer, who will edit the consolidate all the notes and observations during the year typed copies of which will replaced the originals and will be filed both in the range and divisional compartment histories or forest journals.

All notes shall be brief and concise and shall be signed and dated.

8.101 At the time of office inspection, Divisional Forest Officers and territorial Conservators will report on the proper upkeep and posting to date of compartment history files or forest journals. Officers taking over charge of a range of division will give a receipt for these records.

All compartment history files will be posted to date accurately before divisional annual control forms are prepared. To ensure this, Divisional Officers will submit the following certificate to their Conservators with the control forms:—

“Certified that I have personally satisfied myself that all compartment history files or forest journals are accurately posted to date, and that the annual control forms for the year agree with the entries in the compartment histories or forest Journals.”

8.102 Marking Officers will consult the respective compartment history files before commencing marking of any compartment, and at the close of marking, they will invariably make a note in the file detailing the lines on which marking has been done.

Section 8—Maps

8. 103. In addition to the 1 in 60000 (1"=1 mile) management map, two complete sets of 1 in 15000 (4"= mile) scale forest survey maps, folded to pocket size 20X12.5 or (8"x5") showing division into compartments, sub-compartments, enumeration section and annual coupes etc. and where necessary, coloured to show allotment to working circles, periodic blocks, felling series etc., will be prepared by the Working Plan Officer. One set will be the use of Divisional Forest Officer and the other set for the use of the Range Officer. The range copy of the map will be the working copy. It will be kept posted up-to-date, all new roads and paths, changes in the forest boundaries areas burnt over, etc. etc., being shown therein as they occur. The divisional copy will be brought to date at the close of each year.

8.104 At the time of office inspection, Divisional Forest Officer and Conservators will report on the proper upkeep and posting to date of the management maps.

Section 8—Control forms

8.105 Annual control forms consist of specially prepared forms showing the prescriptions and suggestions of a sanctioned working plan or working scheme, and the fellings and other exploitation actually made or the working actually carried out against them. It must, however, be clearly understood that control forms are concerned only with the control of prescriptions and suggestions. They are not account forms and so they will not be encumbered with unnecessary details of petty fellings, net out turn, methods of exploitation, resin operations, extensive information regarding repairs to communications, buildings boundary pillars and fire lines, sowing, planting and other cultural operations etc.

Control forms for fellings and other exploitations as well as for works of improvement and reproduction will be maintained in specified forms as given in note on control forms.

8.106 These can be modified by the Working Plan Officer or special forms will be prepared by him to suit the special needs of a particular working plan or working scheme.

8.107 In Working circles with a volume regulation of the yields, the same diameter classes and the same Volume factors will be used for the calculation of the volume felled as for the calculation of the prescribed yield.

Factors for
Volume
Calcula-
tions.

8.108 Trees of species and diameter classes not under control, when felled in areas under volume or number of trees control, will not be shown in control form.

Uncontrol-
led Species
and Dia-
meter
Classes.

8.109 Working Plans permit the removal of odd dry trees, trees cut on road work, trees required for departmental use, right-holders free grantees, etc. etc., at the discretion of the Divisional Forest Officer. They are not silvicultural fellings and do not affect the working plan control and as such not be entered in control form except when they happen to occur in an area under volume or number of trees control. Similarly, a few odd trees felled for right holders and free grantees, etc., under thinnings or improvement fellings, does not mean that the area has been gone over for thinning or improvement fellings, and the area in such cases should not be entered in control form as operated upon against working plan prescriptions.

Petty
Fellings.

8.110 In areas covered by working plans or sanctioned working scheme no fellings not authorised under the working plan or working Scheme will be carried out for any purpose whatever without the previous sanction in writing of the Chief Conservator of Forests. Divisional Forest Officers contemplating any such felling will send up a proper case for sanction through their Conservators before any markings are carried out. All trees so felled will be entered in control form under the heading "Fellings neither prescribed nor suggested in the Working Plan" and the sanction authorising such felling will be quoted. The territorial Conservators will submit such proposal to the Chief Conservator of Forests.

Special
order of the
Chief Con-
servator of
Forests reg:
felling Chief
Conservator
of Forests
No. 254
dated 2nd
October,
1931.

8.111 No felling for other purpose whatever except—

(1) satisfaction of rights,

(2) meeting of departmental requirements,

(3) meeting of petty demands from other Government Departments, will be made from areas not covered by working plans or sanctioned working schemes, without the previous sanction in writing of the Chief Conservator of Forests. Conservators may authorise such fellings to extent covered by such free grants as they themselves have powers so sanction.

Felling in
areas not
covered by
working
plans or
working
schemes

All trees so felled will be entered in control form under the heading "Fellings neither prescribed nor suggested in the Working Plan."

8.112 In case of Rail, Road and Canal strips whether under sanctioned working plan or not, whenever trees have to be felled urgently to meet the requirement of parent department, Conservator of Forests will allow such fellings.

Deviations.

8.113 Divisional Forest Officers are strictly forbidden to make excess or advance fellings not sanctioned or contemplated by working plans or sanctioned working schemes without obtaining previous sanction of the Chief Conservator. These sanctions will be quoted in the remarks column of Control Form.

8.114 All other deviations from the prescription of a working plan or sanctioned working scheme, e.g. deficit fellings alteration of the year of felling, writing off or abandonment of arrear fellings, etc. will be sanctioned by Conservators. Sanctions for such deviations should be obtained and quoted in the remarks column of Control Form.

Before approving any deviations from the prescriptions of the Working Plan or scheme as contemplated in paragraphs 113 and 114 above, the territorial Conservators will invariably obtain previous concurrence of the Working Plans Conservator to the same and quote his authority in support of the deviation in the remarks column of the Deviation Statement when it is submitted to the Chief Conservator alongwith the Control Forms annually for approval. A copy of the deviation statement so submitted to the Chief Conservator will also be supplied to the Working Plans Conservator side by side for record in his office.

8.115 Sanction to deficit fellings against the working plan prescriptions should be renewed every year until the fellings are carried out or written off. No sanction to a minus entry is, however, required until the end of the period in cases where the yield control is periodic and not annual.

8.116 Any entry brought forward from the previous year, if written off or abandoned from the years' control form must be supported by the sanction of the Conservator together with a justification for not carrying out the working plan prescription.

Annual
Control
Form No. 4
4 C.

8.117 Annual control forms dealing which record all works carried out in connection with the construction and repairs of communications and buildings, demarcation, fire protection and cultural operations such as debris burning, planting sowing, fencing, weeding, cleanings and improvement fellings. It must, however, be again emphasised that this form is not an account form, but a form designed merely to control works of maintenance reproduction, improvement and protection prescribed or suggested in a working plan and actually carried out. Details, therefore, are not wanted in control form, but only an abstract of work done with expenditure incurred. All petty items not affecting the plan and all unnecessary information will be rigidly excluded from this form.

8.118 A consolidated statement of all deviations from a working plan or sanctioned working scheme will be prepared and submitted by the Divisional Forest Officer along with his annual control forms.

Deviation
Statement

8.119 In view of the varying needs of different working plans, it is impossible to standardise annual control forms and the methods of their preparations. The exact nature of the forms and the methods of entries to be made therein will, therefore, be dealt in detail by the working Plan Officer in a separate chapter of the working plan devoted to "Control". In doing so he will keep in view the forms suggested in the technical note on control forms.

Instruc-
tions regar-
ding Con-
trol form
for work-
ing Plan
Officer.

The Working Plan Officer will prescribe and prepare sample control forms separately for each working circle, showing exactly how control is to be effected when the working plan comes into force. The sample control forms will be printed as an appendix to the plan.

In the "Control" Chapter of the working plan, the Working Plan Officer will clearly distinguish the prescriptions of the plan from the suggestions and give a summary of the prescriptions followed by a summary of the suggestions separately for each working circle except for miscellaneous regulations such as roads and buildings and repairs which are common to all working circles. A tabular statement will be prepared giving this information along with reference to relevant paragraphs of the plan.

Section 10—Miscellaneous

8.120 The Working Plan Officers should write their monthly progress reports in the form below and send a copy of the same to their conservators on the 5th of each month:—

Progress
reports.

- (i) Progress of compartment formations and area statistics in case of new working plan.
- (ii) Progress of inspection of forests with a view to writing out description of compartments, formation of working circles and felling series, proposals for future treatment etc.
- (iii) Progress of Enumeration work.
- (iv) Checking of Enumeration by the Working Plan Officer himself. Results of checking must be invariably noted in each case.
- (v) Progress of Ring Counting.
- (vi) Progress of collection of other statistical data.
- (vii) Progress in the preparation of stock and management (Working Plan) maps.
- (viii) Progress in actual writing out of the working plan.

(ix) Progress of typing.

(x) Miscellaneous.

A foresta-
tion
scheme

8.121—All petty afforestation schemes for areas acquired under Section 38 of the Indian Forest Act or under Chos Act, etc. etc. will be drawn up by the territorial Divisional Forest Officers themselves.

Size to
which the
working
plans will
be printed.

8.122 All working plans will be printed and published in one standard size *i.e.* 24×18 cm.