# PART II

# CHAPTER-IX Basis of Proposals

## 9.1. General

- 9.1.1. Till recent past, forests were managed, mainly, for timber and firewood. Prescriptions in previous working plans focused on revenue from forests. Times and perceptions have changed. Now prescriptions in working plans focus on regeneration. Our state Forest Policy, 2010 recognizes the functions of forest, which is reproduced here as under:-
- 9.1.2. The State Policy of Jammu & Kashmir, 2010 has also laid down the objectives of forest management. The objectives have been framed with the view to ensure environmental stability and maintain biodiversity values and ecological balance including atmospheric equilibrium, which is vital for sustenance of all life forms. There is a paradigm shift from use-oriented management to conservation orientation and this shift has given a totally different perspective to the principles of forest management. Though forests have been recognized as global resource in terms of ecological values and biodiversity, dependence of communities on forests for their sustenance has led to the recognition of their undisputed role in conservation. Therefore their participation has been recognized as an integral part of forest management.
- 9.1.3. It is thus of great importance that forests are managed for achieving optimum productivity on a sustainable basis. For scientific and intensive management of existing natural forests and plantations these principles have been adopted in the present working plan.
- 9.1.4. The State Forest Policy, 2010 suggests certain guidelines for future management of forests. Emphasis is more on conservation aspect rather than on revenue. The objectives of management which have been laid down are here as under:-
  - 1. Conservation of biodiversity and natural habitat through preservation of natural forests with the vast variety of flora and fauna.
  - 2. Rehabilitation of degraded forests so as to optimize their productivity and restore their potential to provide ecosystem goods and services on sustainable basis.
  - 3. Poverty alleviation by meeting livelihood needs of forest dependent communities through sustainable supply of forest produce by improving productivity of existing forests, and through forestry activities, schemes and programmes.
  - 4. Extending tree cover outside forests to reduce pressure on natural forests for supply of forest produce.
  - 5. Checking denudation and soil erosion in catchments through integrated watershed management techniques and practices.

- 6. Maintenance of the health of forest vegetation and forest soils for augmenting water supplies through recharge of underground aquifers and regulation of surface water flows, sediment levels and water quality.
- 7. Optimally utilizing the mitigation and adaptation potential of forests in the context of climate change.
- 8. Reducing pressure on forests through appropriate interventions including development of forest fringe belt into high production tree strips.
- 9. Utilization of natural resources using best management practices including development of non-timber forest produce and institutionalization and operationalization of concepts of eco-tourism and nature tourism.
- 10. Creating a sustained people's movement for achieving the aforementioned objectives, so that environmental security is ensured
- 11. Taking the above factors into consideration, following objectives have been adopted for future management of forests in Shopian Forest Division.

#### 9.2. Method of Treatment to be Adopted:

#### In order to accomplish the objectives, following strategies are proposed.

- 9.2.1. Management of forests as far as possible no green fellings will be prescribed. All high lying forests situated on steep and precipitous slopes will be given protection in order to maintain the ecological balance and soil and water conservation. The low lying, degraded forests which have come under huge biotic pressure in the recent past will be given protection from such interferences and their rehabilitations will be aided by closing and reforesting with native species.
- 9.2.2. Adoption of measures that will counter the threats that result into damage to forests. Timber smuggling is a big threat to forests of Shopian Division. Huge encroachment has also taken place at certain places in the past. Lopping, pole cutting and grazing are other factors that have inflicted huge damages to forests. Therefore management of forests in coming decades should be as such which will counter these threats and forests can be preserved for posterity.
- 9.2.3. Identification of causes of degradation in ecologically vulnerable areas and mitigation of these causes. Soil and moisture conservation on watershed basis for improvement of soil and water regimes. Fire being the most important degrading factor, precise plans for fire management to be taken up on priority basis.
- 9.2.4. Rehabilitation of degraded areas keeping in view the biodiversity status, stage of ecological succession and requirements of communities. Improvement in growing stock, soil and moisture conservation measures, utilization of produce like NWFP, medicinal plants, Eco-tourism etc. without adversely affecting the forests to be attempted. Participation of communities will be ensured wherever feasible.
- 9.2.5. Plantation forestry sector has seen many advances in recent years in terms of technology and genetic improvement of plantation species. Adoption of locally suitable advanced technology with genetically superior native planting stock will be

the thrust area for attaining high productivity in the management of forest plantations.

- 9.2.6. In order to ensure effective and supportive participation of the communities and reduce their dependence on forests, welfare measures are to be taken to the extent possible. Management of NWFP requires strengthening by way of training communities on scientific harvesting, minimizing wastage, value-addition and ensuring credible marketing systems. Awareness about the need of sustainability is essential for ensuring constructive involvement of communities.
- 9.2.7. Considering the guiding factors that form the basis of proposals and the objectives of management, corresponding attitudinal change in the forest establishment is very essential. Human resource development is the key area for efficiency in any organization. It is essential that the office as well field staff be exposed to the new concepts in forest management, as they are to deal closely with forestry matters. In order to raise the motivation levels of the staff, suitable human resource management principles related to the infrastructure, clear duties and functions, incentives in form of recognition of better performance and above all, adequate training inputs need to be ensured. Sensitization of the field staff to work in participatory management and introduction to the techniques of PRA etc. are essential for effective implementation of schemes in association with the communities.

#### 9.3. Hon'ble Supreme Court Judgment (12.12.1996)

- 9.3.1. Hon'ble Supreme Court in its landmark judgment on 12.12.1996 issued certain directions with respect to tree felling. Among general directions included suspension of felling operations in all forests in all states except in accordance with the Working Plans of the state governments, as approved by the Central Government. Among specific directions, the Hon'ble Supreme Court of India issued certain directions with respect to state of Jammu and Kashmir. The directions read as:-
  - 1. There will be no felling of trees permitted in any "forest", public or private. This ban will not effect felling in any private plantations comprising of trees planted by private persons or the Social Forestry Department of the state of Jammu & Kashmir and in such plantations, fellings will be strictly in accordance with law.
  - 2. In forests, the state government may either departmentally or through the State Forest Corporation **remove fallen trees or fell and remove diseased or dry standing timber,** and that only from areas other than those notified under the Jammu & Kashmir Wild Life Protection Act, 1978 or any other law banning such felling or removal of trees.
  - 3. For this purpose, the state government will constitute an Expert Committee comprising of a representative being an IFS officer posted in the state of Jammu & Kashmir, a representative of the state government, and two private experts of eminence and Managing Director of the State Forest Corporation (as Member Secretary) who will fix the qualitative and quantitative norms for the felling of fallen

trees, diseased and dry standing trees. The state shall ensure that the trees so felled and removed by it are strictly in accordance with these norms.

- 4. Any felling of trees in forest or otherwise or any clearance of land for execution of projects shall be in strict compliance with the Jammu & Kashmir Forest Conservation Act, 1990 and any other laws applying thereto. However, any trees so felled, and the disposal of such trees shall be done exclusively by the State Forest Corporation and no private agency will be permitted to deal with this aspect. This direction will cover the submerged areas of the Thein Dam.
- 5. All timber obtained, as aforesaid or otherwise, shall be utilized within the State, preferably to meet the timber and fuel wood requirements of the local people, the Government and other local institutions.

# 9.4. Recommendations of Expert Committee for Qualitative & Quantitative Norms

- 9.4.1. The recommendations of Expert Committee for Qualitative & Quantitative Norms for removal of trees from forests are given as below:-
- 9.4.2. Time Limits for Working out the coupes handed over to the State Forest Corporation: The state Forest Corporation shall complete all the lumbering operations in compartments taken over by it within three years/three working seasons from the date the markings are handed over to it and hand over the compartments back to the Forest department thereafter. In very rare cases, where the work has been delayed due to exceptional circumstances, the Chief Conservator of Forests (Territorial) concerned may allow extension of one more year/one more working season to the SFC on the specific recommendations of the Managing Director. This condition will also apply to the compartments currently under work with SFC. However, in such compartments, the three year limit will be computed with effect from the current year i.e., 2009-10
- 9.4.3. Marking of fallen trees in coupes under work with State Forest Corporation: During the period referred in item 1 above, when a compartment is under work with the SFC, any material that becomes available in the form of fallen trees shall be marked and handed over to the corporation for extraction.
- 9.4.4. **Duration of the Felling Cycle:** A compartment which has been worked out for dry standing/fallen markings, and has been handed back to the Forest department, may be taken up for dry standing/fallen markings again only after a period of five years that would have elapsed from the date the compartment was handed back to the forest department. In the case of Fir Working Circle, such period shall be minimum eight years.
- 9.4.5. Norms for minimum availability of volume for enabling marking in a compartment. No compartment should be marked unless a minimum volume of 10,000 cft of dry, dead, fallen timber is available in it. The SFC will not be allowed to work a compartment unless it has a minimum marking (volume) of 10,000 cft. However, no

such limitation of marking availability will apply to departmental extraction of timber by Forest department for meeting the local demands.

- 9.4.6. **Protection, Reboisement and Unregulated Working Circle:** A compartment falling under Protection, Reboisement or Unregulated Working Circle may be marked and handed over to SFC for extraction of fallen trees only provided the volume of fallen trees in the compartment is not less than 10,000 cft. However, the restriction regarding minimum availability of 10,000 cft will not apply to departmental working in such compartments by Forest department for meeting the local demands.
- 9.4.7. Removal of trees that endanger life/property, and for aesthetic purpose : The removal of dry standing/ leaning/fallen trees may be carried out by the Forest department if such trees pose a threat to life and property. Further in Aesthetic Working Circle, such trees may be removed by the Forest Department for aesthetic considerations also. The committee also recommended that the aesthetic working circle should be renamed as Eco-tourism working Circle whenever the respective working plans are taken up for revision.

#### 9.4.8. Forest Conservation :

Recognizing the importance of ecosystem services being provided by the forests, the committee felt that concerted efforts should be made for regenerating and restocking of the forests. This, *inter alia* would require reduction of pressure on forests for meeting demands of timber and other forest produce. In this context, the committee also recommended that the import of timber into the state should be encouraged so that the gap between demand and supply is bridged to the maximum possible extent.

#### 9.5. Constitution of Working Circles

- 9.5.1. In order to achieve the above objectives, the forests of the Division are divided into the following working circles for the purpose of management.
  - 1. Fir Selection Working circle
  - 2. Rehabilitation Working Circle
  - 3. Ecological Conservation Working Circle
  - 4. Wildlife Management (Overlapping) Working Circle
  - 5. Joint Forest Management Overlapping Working Circle
  - 6. NTFP Overlapping Working Circle
  - 7. Plantation Overlapping Working Circle
  - 8. Forest Protection Overlapping Working Circle

#### 9.6. Details of Working Circles:

Working Circle	Area (hac)	Distribution		
Fir Selection W.C	7828.80	All Fir forests of Division		
Dehebilitation/WC	16245 00	All degraded forests of		
Kenaointation/ w.C	10343.90	Division		
Ecological Conservation	0167.40	All high lying areas above		
Working Circle	9107.40	10,000 ft. altitude		
Wildlife W.C	-	The entire forests of Division		

# TABLE: 9.1Details of working circles

# 9.7. Period of the Plan:

9.7.1. This Plan shall remain in operation for a period of ten years from April, 2014 to March, 2024. The Plan under revision shall be deemed to have been extended from 1986-87 to March, 2014, the period between the expiry of the last plan under revision and the beginning of this Plan. Intermediate revision is not required.

## 9.8. Reasons for Constitution of Working Circles

- 9.8.1. The Deodar Kail Conservation Working Circle which used to be one of prime working circles in all previous four Plans, with a growing stock of 351.97 cums per hac in the previous Working Plan (Tickus Working Plan 1977-1986) has been abandoned, owing to the fact that all the Low Lying well stocked, deodar kail forests previously allotted to this Working Circle have under gone a sea-change due to organized and commercial felling coupled with unabated forest clearance through illicit fellings during turmoil.
- 9.8.2. As per previous working plan, the constitution of Deodar Kail conservation Working circle was as under:-

Range	Blocks	Compartments	Total Area (ha)	
	Ladigassan,	V-6, V-7, V-4c, V-5a, V-5b, V-1a, V-1b, V-2b,		
Shopian	Chotipora,	V-2c, Rb-1a, Rb-2a, Rb-5b, Rb-17a, Rb-18, Rb-	9060.90	
	Hirpora,	19a, Rb-19b, Rb-20, Rb-21, Rb-22a, Rb-22b,		
	Zawoora-A,	Rb-23, Rb-24a, Rb-25, Rb-26b		
	Zawoora-B.			
D1.	Keller,	Rb-33, Ri-7, Ri-8b, Ri-9a, Y-1, Y-6, Y-7, Y-8,	1040.00	
Romshi	Yar	Y-9, Y-2, Y-3, Y-4, Y-5	1848.80	
		TOTAL	10909.70	

 TABLE: 9.2

 Range wise compartments of Deodar – Kail Conservation WC

9.8.3. The allotment of compartments to various Working Circles in the previous plan by Shri Ticku due to the forgoing reasons have been changed to a considerable extent in

the present plan. All the above low lying valuable and easily accessible Kail and Deodar forests which experienced heavy degradation and rendered unproductive and barren assigned to DKCWC in the previous Plan have been shifted to Rehabilitation Working Circle and their rehabilitation by massive aforestation and closure is the main aim, so that these forests are restocked back to their vigour and vitality.

## 9.9. Brief Description of Working Circles:

9.9.1 **Fir Selection Working Circle:** The working circle comprises of well stocked, low lying accessible Fir forests. These forests occupy upper slopes above Deodar-Kail zone extending up to about 3000 mts altitude and are as under:

Range	Blocks	Compartments	Total Area (ha)
Shopian	Sedew Kathahallan Mughpathri	V-4a, V-4b, Rb-4, Rb-5a, Rb-6, Rb-17b	1719.40
Romshi	Thirna Zampathri Chawan	Rb-27-a, Rb-27b, Rb-31, Rb-32, Ri-1, Ri-2, Ri- 3a, Ri-5b, Ri-6, Ri-12a, Ri-15b, Ri-16, Ri-17, Ri- 18, Ri-19, Ri-20a, Ri-20b, Ri-23a, Ri-23b, Ri- 24a, Ri-24b and Ri-24c	6109.40
	•	Total	7828 80

# TABLE: 9.3 Compartments in Fir Selection WC as per Present Working Plan

9.9.2 This Working Circle shall include all the commercial Fir forests considered suitable for commercial exploitation under Selection System. These forests consist of pure fir, or mixture of fir with Kail and sprinkling of deodar, spruce etc. The crop consists of predominately mature trees. Regeneration is either absent or inadequate.

9.9.3 **Rehabilitation Working Circle:** The working circle includes all such low-lying degraded deodar-kail forests which have been rendered unfit for regular working by biotic excesses. These are usually situated in close proximity of human habitations. They have become unproductive over the period of time by way of incessant lopping, illegal damage, grazing and encroachment.

This working circle also includes some of the areas which were under regular working in recent past and turned degraded due to biotic influences and lack of proper rehabilitative measures. The average stocking of these forests is very low and their rehabilitation by massive aforestation and closure is the main aim, so that these forests are restocked back to their vigour and vitality.

 TABLE :9.4

 Showing comparison of area in the present Plan and the Plan under revision

Plan	Compartments	Commercial Area	Blanks and Un-commercial Area	Total Area
Previous	Rb-3, Rb-16a, Rb-19c, Ri-21, Ri-22	933.70	4384.60	5318.30
Current	V-1a, V-1b, V-2a, V-2b, V-2c, V-3, V-4c, V-5a, V-5b, V-6, V-7, Rb-1a, Rb-1b, Rb-2a, Rb-2b, Rb-3, Rb-5b, Rb-16a, Rb-16b, Rb-17a, Rb-18, Rb- 19a, Rb-19b, Rb-19c, Rb-20, Rb-21, Rb-22a, Rb-22b, Rb-23, Rb-24a, Rb- 24b, Rb-25, Rb-26a, Rb-26b, Rb-28, Rb-29, Rb-30, Rb-33, Ri-7, Ri- 8a,Ri-8b, Ri-9a,Ri-9b, Y-1, Y-2, Y- 3, Y-4, Y-5, Y-6, Y-7, Y-8, Y-9	7911.09	8434.81	16345.9

**9.9.5** Ecological Conservation Working Circle: The working circle comprises of all high lying areas above 10,000 feet altitude which have steep to precipitous slopes and rugged topography. It includes high-lying Fir-Kail forests and alpine pastures. These forests are commercially un-exploitable and are retained as protection belt. The stocking of these forests is poor in quality as well as quantity and are unworkable for purpose of National Land (erosion) safeguard and Water moisture Conservation. The constitution of this Working Circle is almost identical with that of Protection Working Circle of previous Plan.

**TABLE : 9.5** 

Showing comparison of area in the present Plan and the Plan under revision

Plan	Compartments	Commercial Area	Blanks and Un-commercial Area	Total Area
Previous	Ri-3b, Ri-4, Ri-5a, Ri-12b, Ri-13, Ri-14, Ri-15a	1710.30	2087.00	3797.30
Current	Ri-3b, Ri-4, Ri-5a, Ri-10, Ri-11, Ri- 12b, Ri-13, Ri-14, Ri-15a, Ri-21, Ri-22	2905.12	6262.28	9167.40

- **9.9.6** Wildlife Management (Overlapping) Working Circle: The management and protection of forests are integrated with the management and protection of wildlife. So this working circle has been formed for protection and conservation of the wildlife found in the forests as well as non-forest areas of the Division. This overlapping working circle is formed to improve the habitat of wildlife where wildlife activities are witnessed and effective measures undertaken to mitigate the mananimal conflict which is of regular occurrence in the area.
- 9.9.4. Joint Forest Management (Overlapping) Working Circle: This working circle has been formed for implementation of the policies and guidelines of the Joint Forest

Management formulated by Central and State Governments. A large part of this division has potential for developing into good JFM working areas. However stress may be given to those areas where there are more barren areas in the form of degraded forest, institutional land or wasteland as well as area prone to illicit damage.

- 9.9.5. **NTFP (Overlapping) Working Circle:** This is an overlapping working circle and the area of operation will cover all the natural forests and plantations. This Working Circles is constituted to give special impetus to the conservation and development of Medicinal Plants and other NTFP's of the Division especially in the high level Fir forests and pasture lands.
- 9.9.6. **Plantation (Overlapping) Working Circle:** In this Working Circle are included all the areas which are needed to be treated either by plantation or by assisted natural regeneration. The compartments under Rehabilitation Working Circle form a part of this working circle. Similarly the compartments were timber is being extracted and suffered wind storm damage would also be treated under this working circle. The areas which will be managed by JFM, too form a part of this Working Circle.
- 9.9.7. Forest Protection (Overlapping) Working Circle: The forests which are prone to damage by illicit felling, encroachment, fire, overgrazing etc. are included in this Working Circle. All the measures to strengthen the Protection network of the Division shall be undertaken in this Working Circle.

#### 9.10. Administrative Units

- 9.10.1. This Plan does not involve any change in the compartment boundaries over the previous plan. However, one forest Block (compartment Rb-25 and Rb-26ab) which was previously under the territorial Jurisdiction of Romshi Range has been incorporated with Shopian Range. Similarly one territorial Block (compartment Ri-23ab, Ri-24abc) under the jurisdiction of Pir Panjal Division has been incorporated with Romshi Range of Shopian Forest Division vide Forest Order No.353 of 2011 dated: 24-11-2011 under endorsement No. CCF(K)/Admn/ 2011/ 286-92 dated: 24-11-2011. The Range wise, Block wise and Beat wise details presently existing are given in appendix (I)
- 9.10.2. The Blocks and Beats are named after prominent villages, drainage or prominent places in the vicinity. The conventional signs of delineating the Divisional boundary by three bands, Range boundaries by two bands and compartment and sub-compartment boundaries by a single band of Coal Tar Ring at breast height have been followed. Compartment number and usual symbols of boundary features have been carved and painted with coal tar at breast height on suitable tree trunks as well as important locations such as canals, crossings, saddles etc.

# CHAPTER-X Working Plan for the Fir Selection Working Circle

## 10.1. General

10.1.1. This working circle comprises well stocked, low lying accessible Fir forests. These forests occupy upper slopes above Deodar-Kail zone extending up to about 3000 mts altitude and are as under:

# TABLE: 10.1 Compartments in Fir Selection WC as per Present Working Plan

Range	Blocks	Compartments	Total Area (hac)	Stocking per hac m <sup>3</sup>
Shopian	Sedew Kathahallan Mughpathri	V-4a, V-4b, Rb-4, Rb-5a, Rb-6, Rb- 17b,	1719.40	226.66
Romshi	Thirna Zampathri Chawan	Rb-27a, Rb-27b Rb-31, Rb-32, Ri-1, Ri-2, Ri-3a, Ri-5b, Ri-6, Ri-12a, Ri- 15b, Ri-16, Ri-17, Ri-18, Ri-19, Ri- 20a, Ri-20b, Ri-23a, Ri-23b, Ri-24a, Ri-24b and Ri-24c	6109.40	
		Total	7828.80	226.66

#### **TABLE: 10.2**

#### Compartments in Fir Selection WC as per previous working plan

Range	Series	Compartments	Total Area (hac)	Stocking per hac m <sup>3</sup>	
	Veshav,	V-2a, V-3, V-4a, V-4b,	596.60	430.50	
Shopian	Rambaria	Rb-1b, Rb-2b, Rb-4, Rb-5a, Rb-6, Rb-7, Rb-8, Rb-9, Rb-16b, Rb-17b, Rb-24b, Rb-26a,	5039.00	454.48	
	Rambaria	Rb-27ab, Rb-28, Rb-29, Rb-30. Rb-31, Rb-32,	3094.60		
		Sub-Total Rambaria	8133.60		
Romshi	Romshi	Ri-1, Ri-2, Ri-3a, Ri-5b, Ri-6, Ri-8a, Ri-9b, Ri-10, Ri-11, Ri-12a, Ri-15b, Ri- 16, Ri-17, Ri-18, Ri-19, Ri-20ab, Ri- 23ab, Ri-24a	5876.70	434.57	
		TOTAL	14606.90	439.85	

10.1.2. This Working Circle shall include all the commercial Fir forests considered suitable for commercial exploitation under Selection System. These forests consist of pure fir, or mixture of fir with Kail and sprinkling of deodar, spruce etc. The crop consists of predominately mature trees. Regeneration is either absent or inadequate.

# 10.2. General Character of Vegetation

10.2.1. The Fir constitutes predominant species of the working circle with very light mixture of Deodar, Kail and other broadleaved species. The solitary Spruce is also sighted at places. The Kail forms chief associate occurring in mixture as well as in pure patches commonly on exposed sites and hotter aspects probably as a result of secondary succession over previously Fir occupied areas destroyed due to land slips, snowslides or with the creation of drier conditions with improvement in site and microclimate. The broad leaved associates are generally confined to nalla banks, moist and damp sites. The crop consists of middle aged to mature trees with poor representation of younger age classes and inadequate amount of regeneration particularly in areas exposed to heavy grazing. Fir forests are typically characterized by over aged growing stock with large gaps in the canopy. Broad leaved species do occur in small patches in special habitats as Nallas, moist depressions, sheltered slopes, but on the whole their proportion is very low as compared to other places in Kashmir Valley. Similarly spruce (*Picea-smithiana*) is of negligible occurrence. Yew (Taxus baccata) is yet another locally common associate of fir, again not of much consequence here.

#### **TABLE 10.3**

Normal and actual distribution of stems over diameter classes - Fir Selection WC

Diameter Class (cm)	10	20-30	30-40	40-50	50-60	60-70	>70-80
Normal distribution %	41	25	15	9	5	3	2
Actual distribution %	6.551	12.997	18.902	17.946	15.866	11.777	14.961

10.2.2. From the above table, it is obvious that there is lower proportion of trees in the lower most diameter classes and higher proportion in the middle diameter classes and considerably higher proportion in the over mature diameter classes.

#### 10.3. Area and Allotment

10.3.1. The detailed area statement of compartments and sub-compartments allotted to this working circle is tabulated under Annexure – III

#### **TABLE 10.4**

The Range wise abstract of the area allotted to this Working circle is as under

Range		Comn	nercial are	Blank & Un	C Total		
	Deodar	Kail	Fir	Broad Leaved	Total	commercial (hacs)	(hacs)
Shopian	0	85.11	1175.59	38.10	1298.80	420.60	1719.40
Romshi	23.80	170.90	5081.58	42.69	5318.97	790.43	6109.40
Total	otal 23.80 256.01 62		6257.17	80.79	6617.77	1211.03	7828.80

10.3.2. The area allotted to this Working Circle works out to be 23.48 % of the total area of the Division. Out of the total area of Working Circle 84.53% is commercial and remaining 15.47 % is Blank and un-commercial. The density of forest cover is low.

# 10.4. Silvi-Cultural System Adopted

10.4.1. Keeping in view, the condition and composition of the crop and environmental functions of these forests, they shall be managed under Selection System, the object of which is to distribute the regeneration evenly over the entire working circle. The fellings in this System are directed towards Silvi-culturally available tress above the exploitable diameter over a given felling circle. Since the establishment of regeneration in this area is deficient, removal of trees will be restricted only to those areas where established regeneration is already present.

# 10.5. Exploitable Size

10.5.1. In order to fulfill the requirement of the area with regard to the protective functions of the forests, and to provide environmental suitability in these fragile forests an exploitable diameter of 80 cms dbh (ob) for Fir and 70 cms dbh (ob) for Kail and Deodar shall be adopted to reduce the intensity of the cut and to avoid the creation of gaps.

# 10.6. Rotation Period

10.6.1. Although there is no relevance of rotation in Selection System, yet for academic interests, the rotation for Fir adopted is 225 years and 150 years each for Kail and Deodar corresponding to an exploitable dia of 80 cm dbh (ob) for Fir and 70 cms dbh (ob) for Kail and Deodar respectively.

# 10.7. Felling Cycle:

10.7.1. A Felling cycle of 25 years is adopted. It is expected to regulate the desired intensity of the cut, besides keeping with the Silvicultural requirement of the crop.

# 10.8. Analysis and evaluation of growing stock

- 10.8.1. For the assessment of growing stock in the working circle, field data was collected from 75 sample points. The data obtained from the surveyed points was utilized to arrive at per hectare figures for the variables under study.
- 10.8.2. Mean values of the variables viz No. of stems per hectare and volume per hectare have been computed diameter class wise and specie wise. Results obtained on the basis of statistical tests have been summarized in the following table as:

Variable (ha)	Sample points (n)	Mean (X)	Variance (S²)	Standard Deviation (S)	Standard error (S.E.)	Coefficient of Variation (%)	Confidence (X± 1.90 Lower limit	limits (95%) 6 x S.E.) Upper limit	Confidence Interval (C.I)	Lower limit as mean (%) of mean
1	2	3	4	5	6	7	8	9	10	11
No. of stems	75	83.64	7263	85.22	9.84	101.89	64.35	102.92	38.57	76.93
Volume	75	226.66	21376	146.21	16.88	64.50	193.57	259.74	66.17	85.40

# TABLE 10.5Statistical analysis of Fir Working Circle

10.8.3. Statement showing species & diameter (cm) class wise tree count of Fir Selection Working Circle

	Tree count per hectare (Mean value in No's)											
Species	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100	100 & over	Grand Total	
Deodar	0	0	0	0	0	0	0	0	0	0	0	
Kail	0.71	0.35	0.93	0.31	0.19	0.20	0	0	0.05	0	2.73	
Fir	0	8.31	14.01	14.20	12.72	9.24	5.68	3.56	1.77	2.16	71.65	
B.L.	4.77	2.21	0.87	0.51	0.36	0.41	0.09	0.03	0	0	9.25	
Total	5.48	10.87	15.81	15.02	13.27	9.85	5.77	3.59	1.82	2.16	83.63	

TABLE 10.6Tree count per hectare (Mean value in No's)

Species	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100	100 & over	Grand Total
Deodar	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Kail	4698.62	2316.22	6154.53	2051.51	1257.38	1323.55	0.00	0.00	330.89	0.00	18066.51
Fir	0.00	54993.67	92714.96	93972.33	84178.03	61148.19	37588.93	23559.26	11713.45	14294.38	474163.22
B.L.	31566.76	14625.27	5757.46	3375.06	2382.40	2713.29	595.60	198.53	0.00	0.00	61214.37
Total	36265.38	71935.16	104626.94	99398.91	87817.81	65185.03	38184.53	23757.79	12044.34	14294.38	553444.11

TABLE 10. 7Tree count over the entire Commercial area of the Working Circle (6617.77 hacs) in Nos.

10.8.4. Statement showing species & diameter (cm) class wise Volume of Fir Selection Working Circle

Species	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100	100 & over	Grand Total
Deodar	0	0	0	0	0	0	0	0	0	0	0
Kail	0	0	0.71	0.42	0.42	0.67	0	0	0.33	0	2.55
Fir	0	0	11.77	22.15	37.78	45.28	38.91	29.55	16.67	22.01	224.11
B.L.	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	12.48	22.57	38.20	45.94	38.91	29.55	17.00	22.01	226.66

TABLE 10.8Volume per hectare (Mean value) in cums

Cracias	10.20	20.30	30 10	10 50	50 60	60 70	70.80	80.00	00 100	100 &	Grand
Species 10	10-20	20-30	50-40	40-30	50-00	00-70	/0-00	80-90	90-100	over	Total
Deodar	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Kail	0.00	0.00	4698.62	2779.46	2779.46	4433.91	0.00	0.00	2183.86	0.00	16875.31
Fir	0.00	0.00	77891.15	146583.61	250019.35	299652.63	257497.43	195555.10	110318.23	145657.12	1483108.43
B.L.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.00	0.00	82589.77	149363.07	252798.81	304020.35	257497.43	195555.10	112502.09	145657.12	1499983.75

 TABLE 10.9

 Volume over the entire Commercial area of the Working Circle (6617.77 hacs) in cums

#### 10.9. Calculation of the Yield

- 10.9.1. The yield will be calculated in terms of number of trees and volume which in turn shall be subject to an area check by working out the size of the annual coupe. Modified Brandies diameter Class method and Van Mantel's formula have been used for calculation of the volume yield. Only growing stock from commercial area has been taken into account for the purpose of yield calculation. The growing stock fixed within 10 cms dia-classes indicated by symbols-I, II, III, IV, V and VI. Class-I standing for trees above the exploitable diameter and the others successively below it. The number of trees in all these classes considered for the purpose of yield calculation are being reduced to lower limit of the confidence interval. The other considerations taken in this regard are:
  - i) On an average it takes 225 years for Fir to reach an exploitable dbh (ob) of 80 cms and 135 & 147 years for Kail and Deodar to reach an exploitable dbh (ob) of 70 cms respectively. However, for sake of uniformity a rotation period of 225 years for Fir and 150 years for Kail and Deodar is followed.
  - *ii)* It takes 40, 20 and 22 years respectively for an average Fir, Kail and Deodar to pass from approach class 70-80 cms dbh(ob) in case of Fir and 60-70 cms dbh (ob) in case of Kail and Deodar to exploitable classes.
- 10.9.2. The following survival coefficient percentage based on all India Volume tables in respect of Deodar, Kail and Fir have been used for yield calculation.

Diameter class	Survival Percentage of species					
Dbh(ob) cm	Deodar	Kail	Fir			
30	62%	46%	20%			
40	75%	59%	40%			
50	86%	74%	50%			
60	95%	86%	60%			
70	95%	95%	85%			
80	-	-	95%			

#### **TABLE 10.10**

#### Survival Coefficient percentage of various classes of Deodar, Kail and Fir

10.9.3 In view of preponderance of mature and over mature growing stock, the yield finally arrived shall be reduced by 15%.

Based on the assumptions, the number of potentially available trees, over the commercial area of this Working Circle, calculated at lower confidence limit of the Mean Value is tabulated in the table below:-

# **TABLE: 10.11**

# Species and Diameter Class-wise Potential availability of Trees from the commercial area of Fir Selection Working Circle.

Class	VI	V	IV	III	II	Ι	
Diameter Class	Below 30	30-40	40-50	50-60	60-70	70 & above	Total
Total No. of trees assessed at Mean Value	0	0	0	0	0	0	
Total No. of trees assessed at lower limit of confidence interval	0	0	0	0	0	0	
Age of entry in the Class	-	70	87	105	125	147	
Years in Class Transition Period	70	17	18	20	22	-	
Survival Co-efficient of the Class	0.40	0.62	0.75	0.86	0.95	0.95	
Number of Potentially available Trees	0	0	0	0	0	0	0

#### Deodar

#### Kail

Class	VI	V	IV	III	II	Ι	
Diameter Class	Below 30	30-40	40-50	50-60	60-70	70 & above	Total
Total No. of trees assessed at Mean Value	0	6154	2051	1257	1323	331	11116
Total No. of trees assessed at lower limit of confidence interval	0	4734	1578	967	1018	255	8552
Age of entry in the Class		64	79	96	115	135	
Years in Class Transition Period		15	17	19	20	-	
Survival Co-efficient of the Class		0.46	0.59	0.74	0.86	0.95	
Number of Potentially available Trees		2178	931	716	875	242	4942

Fir							
Class	VI		IV	Ш	П	Ι	
Diameter Class	30-40	40-50	50-60	60-70	70-80	80 & above	Total
Total No. of trees assessed at Mean Value	92715	93972	84178	61148	37588	49567	419168
Total No. of trees assessed at lower limit of confidence interval	71326	72293	64758	47041	28916	38132	322466
Age of entry in the Class	87	109	133	161	195	235	
Years in Class Transition Period	22	24	28	34	40	-	
Survival Co-efficient of the Class	0.20	0.40	0.50	0.60	0.85	0.95	
Number of Potentially available Trees	14265	28917	32379	28225	24579	36225	164590

# 10.10. Yield Regulation

10.10.1. Modified Brandies Diameter Class Method and Van Mantel's formula have been applied for yield calculation. The step wise calculations for one felling cycle on the basis of Modified Brandies Diameter Class Method is tabulated under table below:

# TABLE: 10.12 Yield calculation of Fir Selection Working Circle using Brandies Diameter Class Method:

<i>S</i> .		Fel	ling Cycle =	=25 years
No		Deodar	Kail	Fir
a)	Total number of trees in Class-I	0	242	36225
b)	Total number of trees likely to pass on to Class-I in the first felling Cycle from Class-II Cass-III	0 0	875 716*5/20 <b>=179</b>	24579*25/40 = <b>15362</b> 0
c)	Total recruitment in Class-I from Class-II & III during first felling Cycle	0	1054	15362
d)	Annual recruitment from Class-II & III during the first felling Cycle (c ÷ 25)	0	42	614
e)	Stock required to be kept as reserve i.e. ½ of total recruitment in (c) above	0	527	7681
f)	Surplus stock of Class-I (a-e)	0	-285	28544
g)	Total possibility of yield in first felling cycle if all surplus stock in (f) above is removed (c+f)	0	769	43906
h)	Annual Yield (g/25)	0	31	1756
i)	Total Possibility of yield if all surplus stock in (f) above	0	769	29634

	is removed in two felling cycles (c+f/2)			
j)	Annual Yield (i/25)	0	31	1185
k)	Weighted average volume of trees above exploitable diameter as per Kulu Volume Tables (in m <sup>3</sup> )	6.11	5.66	8.68
1)	Total Annual volume yield (m <sup>3</sup> )	0	175	10286
m)	Deduct 15% from (1) above to account from mortality	0	149	8743
n)	Rounded off to lower multiple of hundred	0	100	8700
	Total		8800 m	3

<i>S</i> .		Felling Cycle =25 years		
No		Deodar	Kail	Fir
a)	Total number of trees in Class-I	0	242	36225
b)	Total number of trees likely to pass on to Class-I in the first felling Cycle from Class-II Class-III	0 0	<b>875</b> 716*5/20 <b>=179</b>	24579*25/40 = <b>15362</b> 0
c)	Total recruitment in Class-I from Class-II & III during first felling Cycle	0	1054	15362
d)	Annual recruitment from Class-II & III during the first felling Cycle (c ÷ 25)	0	42	614
e)	Stock required to be kept as reserve i.e. ½ of total recruitment in (c) above	0	527	7681
f)	Surplus stock of Class-I (a-e)	0	-285	28544
g)	Total possibility of yield in first felling cycle if all surplus stock in (f) above is removed (c+f)	0	769	43906
h)	Annual Yield (g/25)	0	31	1756
i)	Total Possibility of yield if all surplus stock in (f) above is removed in two felling cycles $(c+f/2)$	0	769	29634
j)	Annual Yield (i/25)	0	31	1185
k)	Weighted average volume of trees above exploitable diameter as per Kulu Volume Tables (in m <sup>3</sup> )	6.11	5.66	8.68
1)	Total Annual volume yield (m <sup>3</sup> ) (one Felling cycle)	0	175	15242
m)	Total Annual volume yield (m <sup>3</sup> ) (two Felling cycle)	0	175	10286
n)	Deduct 15% from (l) above to account from mortality (one felling Cycle)	0	149	12956
0)	Deduct 15% from (l) above to account from mortality (two felling Cycle)	0	149	8743
p)	Annual yield (n) rounded off to lower multiple of hundred (one felling Cycle)	0	100	12900
q)	Annual yield (n) rounded off to lower multiple of hundred (two felling Cycle)	0	100	8700

Final Annual Yield (Deodar+ Kail+Fir) for one Felling Cycle=13000 m<sup>3</sup>

Final Annual Yield (Deodar+Kail+Fir) for two Felling Cycle=8800 m<sup>3</sup>

**Note**: Since in case of Kail, the surplus stock under (f) is –ve, the deficit shall be liquidated in the first felling Cycle itself and hence the yield under (j) is identical to yield under (h)

#### 10.11. Yield Calculation by Van Mantel's Method

10.11.1. The yield can also be calculated by using Van Mantel's Formula as represented below in the table

TABLE	:10.13
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#### The yield calculated using Van Mantel's formula is as under

	Deodar	Kail	Fir	Total
	R=150	R=150	R=225	
Total commercial Volume based of mean value (m <sup>3</sup> )	0	16835.31	1483108.43	1499983.75
Total commercial Volume based on lower limit of confidence interval (m <sup>3</sup> )	0	14377	1266575	1280952
Annual Yield (m <sup>3</sup> ) 2GS/R	0	192	11258	11450
Round off to nearest multiple of hundred	0	200	11200	11400

10.11.2. The Comparative statement of yield computed from the two Methods is as under:-

	<u>Annual Yield (m³)</u>						
	<u>Deodar</u>		Kail	Fir	Total		
Brandies Method	0	100	8700	8800			
Van Mantel's Method	0	200	11200	11400			

10.11.3. From the perusal of the above comparative statement, it is clear the Yield calculated by Van Mantel's Method is more than the Yield calculated from Brandies Method. It is due to the preponderance of growing stock in higher diameter Class. The Yield calculated by adopting the Brandies Method is only 77% of the yield obtained by Van Mantel's Method and is therefore conservative.

#### 10.12. Size of the Annual Coupe

10.12.1. The yield calculated on volume basis shall be controlled by area check. The size of the annual coupe is as under:-

Size of Annual Coupe =<u>Total commercial area</u> =<u>6617.77</u> = 264.71 Say 265 hacs Felling Cycle 25

#### 10.13. Allowable Cut

10.13.1. After the annual yield and the size of annual coupe is known, the allowable cut is computed as under:

Total Annual Yield (m <sup>3</sup> )	Annual Coupe	Allowable cut (per hac) m <sup>3</sup>	Growing Stock per Hac (m <sup>3</sup> )	Allowable cut as % of GS
8800 m <sup>3</sup>	265 hacs	33.20	226.66	14.65

Table 10.14Comparison of Yield between Previous and Current Working Plan:

Plan	Commercial area	Total Vol. Yield m <sup>3</sup>	Annual Coupe hacs	Allowable cut m <sup>3</sup>	G.S. Vol. per hac m <sup>3</sup>	Allowable cut as % of GS Vol.
Present	6617.77	8800	265	33.20	226.66	14.65
Previous	12642.00	54265	383	142	439.85	32.28

#### 10.14. Realization of the Yield

10.14.1. Out of total commercial area of 6617.77 hectares, no green felling for the 1<sup>st</sup> Five years of the Plan shall be under taken and the yield is going to be realized strictly as per Q&Q norms. This is due to the fact that the wind storm that struck the ill fate forests of Shopian did a massacre and wholesale destruction to these forests when around more than 55 lakh cfts got uprooted in a single stroke, and probably due to the fact that lot of fallen material is readily available at present which shall be evacuated within the 1<sup>st</sup> Five Years of this Working Plan. Secondly the forests of Shopian are susceptible to wind throw and because the area experiences heavy snowfall during the winter, a lot of fallen material becomes readily available due to these natural calamities each and every year for its exploitation. So it is but natural that snow/winds which cause damage to the forests by natural uprooting/felling of trees thereby making available lot of such fallen material which could be easily used for exploitation during this period.

#### 10.15. Sequence of Felling

10.15.1. Keeping in view the progress of regeneration and other modalities, it is left to the discretion of territorial Divisional Forest Officer to select the Annual coupes. The pace of work will have to be assessed at the end of the year.

#### 10.16. Method of Executing Felling

10.16.1. The Broad guidelines in the execution of felling will be removal of overwood standing above the advance growth and regeneration and also very light opening up of the crop where regeneration is inadequate. In order to avoid the invasion of the area by weeds, which come up profusely in the gaps, the canopy needs to be manipulated with utmost care. The following marking rules are laid down for the guidance of the marking Officers.

#### 10.16.2. Marking and Felling Rules:

- 1. Marking should be done by DCF/ACF of the Division. The marking should never be done by anybody below the rank of a trained and experienced Range Officer in which case, the DFO should check at least 25% of the markings.
- 2. Before the marking, the marking Officer must acquaint himself thoroughly with the condition and composition of the crop in the compartment and its boundaries by traversing the area of the compartment.
- No marking, except the removal of dead and diseased trees, shall be done in areas near and around cultivations, habitations, bahaks and blanks within a distance of 50 meters from their periphery.
- 4. No healthy, trees below the exploitable size should be marked.
- 5. The selection character of the crop shall be maintained by retaining some healthy trees of exploitable size, which do not cause any suppression to the crop.
- 6. No marking should be conducted in areas deficient in regeneration.
- 7. No marking should be done on steep and precipitous slopes.
- The over mature trees should get preference over relatively young and healthier crop.
- Marking for improvement fellings shall form an integral part of the major markings. All dead and diseased trees shall be marked together with malformed and unfit trees.
- 10. All the trees of exploitable size (70 cm dhb(ob) in case of Deodar and Kail, and 80 cm dhb(ob) in case of Fir) standing over adequate advance growth should be removed.
- 11. In groups of trees, of and above exploitable size, canopy should be spaced out 5 to 10 meters depending upon the status and amount of regeneration present.
- 12. In the missed crop, ecologically most suitable species to the locality should be favoured e.g. Kail should be preferred over Fir in retention in lower areas and exposed sites.
- 13. The intensity of felling over a particular compartment will largely depend upon the degree of biotic interference to which the area is subjected to, amount and status of regeneration and its topography, slope and aspect.
- 14. Extreme care has to be taken at the time of felling so as not to damage the regeneration below.
- 15. Trees marked for felling should be lopped before felling.

#### 10.16.3. Supplementary Marking:

As soon as the major fellings are over, supplementary marking of poles and trees damaged in felling or those that have died, dried or fallen off subsequent to the major felling should be conducted. Judicious discretion of the marking Officer is, therefore, needed so that provision of supplementary markings is not misused, and only such trees as are considered definitely unfit for retention or not likely to survive in the near further, are marked.

- 10.16.4. **Cultural Operations:** The amount of felling debris left in Fir forest is considerably more than the Deodar-kail forests. These forests are confined to interior areas, far away from habitations and off-take by Villagers in a negligible quantity, which is detrimental for the natural regeneration of Fir. Therefore, this felling debris shall be disposed of by burning during the safe season and at safe places under proper supervision.
- 10.16.5. **Regeneration Programme:** The success of any silvicultural system adopted, depends largely on the efforts made to regenerate the forest in due course of time. By exclusion of biotic interference from Fir forest there is practically no difficulty in regenerating these forests naturally. But unfortunately the extent of area deficient in regeneration is expanding continuously as a result of excessive grazing by nomadic Bakerwalas, Gujjars and local herdsmen. The measures to induce regeneration need to be applied over a large area. In the prevailing socioeconomic constraints. It is therefore, suggested that the area for regeneration, equal to the size of the annual coupe, evenly distributed over the working circle should be closed to grazing every year. All efforts should be made to induce natural regeneration and assist its establishment. This involves removal of weeds, raking up of humus and closure of such areas to grazing. In case of the area being too refractory to respond to natural seeding, artificial regeneration by way of sowing and planting of nursery raised seedlings be restored to.

#### 10.17. Nursery & Plantation Technique

#### 10.17.1. Fir- (Abies Pindrow)

Fir is a slow growing species found generally from 2200 to 3400 mtrs. altitude. It sometimes extends between 2000 to 3500 mtrs. and requires cool and moist climate. It is sensitive to drought and frost and grows best in open sunlight.

#### 10.17.2. Seed

Cones ripen from October to November. They should be collected in October, before they break-up, these should be dried to split open. Seeds should be extracted by shaking & winnowing. Seed should be stored properly till sowing. Good seed year occurs in 6-7 years. About 2500 seeds weigh a kilogram. Germination starts after 4-5 months and is complete in about one & half month. Plant percentage is about 1500/kg of seeds.

#### 10.17.3. Nursery Techniques

Seed are sown in November-December before snowfall. These will start germinating in April.

#### 10.17.4. Plant Technique

Three season old bagged plants are transplanted before snowfall or after winter in March when snow melts. Spacing kept is generally 2 x 2 mtrs. Weeding & cleaning be done twice a year.

#### 10.17.5. Spruce- (Picea Smthiana)

Found at 2100 to 3300 mtrs. but sometimes as less as 1500 mtrs.

#### 10.17.6. Seed

Female cones ripen in October, November. They should be collected from the trees, spread in the sun (or kiln) for drying and beaten to extract seeds. Seeds can be stored upto one year. They are small (50-55 thousand/kg). Germination is normally good (more than 50%) usually complete in 1-2 months. Good seed year is expected once in 5 years.

#### 10.17.7. Nursery Techniques

Fresh seeds are sown in October-November or more usually in February-March. Germination will begin in May-June, pricking out of the seedlings be done every year from the  $2^{nd}$  year.

#### 10.17.8. Plant Technique

Planting out is done in second, third or fourth year. Seedlings with Poly bags are planted in prepared pits 1.5 mtrs. or 2 mtrs. approx. Roots should not be injured during transplanting. Initial growth is slow and requires tending for 3-4 years. Needs protection from the sun in early youth. It is fire tender but not much browsed.

#### 10.18. Control of Grazing

- 10.18.1. The unrestricted, uncontrolled and unregulated grazing in Fir Forests of this division is the main reason for the failure of regeneration to establish. Large herds of migratory as well as local livestock graze in these forests and nibble the young seedlings as soon as they immerge in the spring or early summer. Unfortunately, there is not much grass available during that time and therefore, the livestock, especially sheep & goats fall back upon the just sprouted seedlings. The ones those escape the spring wrath are consumed by the retracting livestock in autumn, when again grass is scanty. This cycle has been going-on unfelt & unnoticed for past so many years.
- 10.18.2. Under the prevailing laws and other circumstances, it is difficult to control and restrict the severity of grazing in these forests. Unless strict laws are enforced and arrangements made for the rehabilitation of migratory graziers and fodder for their animals, this menace is likely to annihilate these forests in due course of time. It is therefore suggested that effective closures are made with efforts to encourage rotational grazing, restricted only to alpine/ sub-alpine pastures. Micro planning for the improvement of pasturelands needs to be conceived and executed effectively on ground.

# CHAPTER-XI Working Plan for Rehabilitation Working Circle

# 11.1. General Constitution of the Working Circle

11.1.1. To this Working Circle are allotted all those potentially, productive, low lying compartments of Deodar, Kail and Fir forests which have been rendered barren, under stocked and unproductive because of excessive and unabated illicit damage, excessive lopping, over exploitation and the like biotic interferences e.g. compartments of Zawoora and Methwani Block, Sedow and Hirpora Block, Keller and Tharina Block. This working circle is identical to Reboisement working circle of previous Plan, however, in the present Plan inclusion of 47 more compartments which were rendered barren and under stocked are allotted to it. On the other hand compartment Ri-21 and Ri-22 previously assigned to this Working Circle have now been allotted to Ecological Conservation Working Circle. Details of compartments and area allotted in the current Plan and the Plan under revision is as under:

Plan	Compartments	Commercial Area	Blanks and Un-commercial Area	Total Area
Previous	Rb-3, Rb-16a, Rb-19c, Ri-21, Ri-22	933.70	4384.60	5318.30
Current	V-1a, V-1b, V-2a, V-2b, V-2c, V-3, V-4c, V-5a, V-5b, V-6, V-7, Rb-1a, Rb-1b, Rb-2a, Rb-2b, Rb-3, Rb-5b, Rb-16a, Rb-16b, Rb-17a, Rb-18, Rb- 19a, Rb-19b, Rb-19c, Rb-20, Rb-21, Rb-22a, Rb-22b, Rb-23, Rb-24a, Rb- 24b, Rb-25, Rb-26a, Rb-26b, Rb-28, Rb-29, Rb-30, Rb-33, Ri-7, Ri-8a,Ri- 8b, Ri-9a,Ri-9b, Y-1, Y-2, Y-3, Y-4, Y-5, Y-6, Y-7, Y-8, Y-9	7911.09	8434.81	16345.90

 TABLE :11.1

 Showing comparison of area in the present Plan and the Plan under revision.

11.1.2. All the same, there is urgent need of rehabilitating these forests back to their vigour, life and luster, mostly through such aids as strict closure to grazing, inducing natural regeneration through subsidiary measures as working of soil in patches, chiseling, raking of humus, uprooting of weeds etc. or even artificial regeneration through sowing and planting of the most suited species among Kail, Deodar and Fir. On certain heavily degraded sites planting of hardy and drought resistant species like Robinea, Alinthus etc. might be needed as a prelude to the introduction of Conifers.

In specially located sites that are too moist or clayey to bear any coniferous growth, planting/sowing of such Broad leaved species as Horse Chest Nut, Bird cherry, Willow, Ash, Maple etc. may be considered.

# 11.2. General Character of Vegetation

11.2.1. The forest comprise of deodar-kail crop of very poor density with some blanks. The crop is usually lopped up to top, malformed and stunted. The Parrotia and other shrubs have invaded the open areas at places. The deodar and Kail are found mixed as well as in pure formations. The traces of broad leaved species are restricted to moist depressions and nalla banks. The deodar varies mostly from young to middle aged and is represented in Yarwan Karewa . The Kail is by and large mature and over mature. The natural regeneration of Kail is not satisfactory here, however in Yarwan Block the regeneration of Deodar is to some extent satisfactory . Following table gives the distribution of stems over various diameter classes as under:-

TABLE 11.2Normal and actual distribution of stems over diameter classes –<br/>Rehabilitation Working Circle

Diameter Class (cm)	10	20- 30	30- 40	40-50	50-60	60-70	>70-80
Normal distribution %	41	25	15	9	5	3	2
Actual distribution %	64.067	5.548	4.349	7.948	6.936	4.058	7.094

11.2.2. From the above table, it is obvious that there is higher proportion of trees in the lower most diameter class and then lower proportion in the middle diameter classes and higher proportion in the mature and over mature classes. The distribution of age classes seems to be quite uneven.

# 11.3. Area and Allotment

11.3.1. The statement of compartment/ sub-compartments allotted to this Working Circle is tabulated under Appendix –I.

#### **TABLE:11.3**

#### Range Wise abstract of the area under Rehabilitation Working Circle.

Range	Commerci	ial Area	Blank &	Grand			
	Deodar	Kail	Fir	B.L.	Total	Uncommercial	Total
Shopain	107.41	1899.55	2361.70	0.00	4368.66	7677.54	12046.20
Romshi	848.47	380.99	2296.75	16.22	3542.43	757.27	4299.70
G.Total	955.88	2280.54	4658.45	16.22	7911.09	8434.81	16345.90

11.3.2 The area allotted to this Working Circle works out to be 49.02 % of the total area of this Division. Out of the total area of this Working Circle 48.40 % is commercial and remaining 51.60 % is Blank and un-commercial. The density of forest cover is very low.

## 11.4. Objectives of Management

- a) To conserve and maintain the existing conifer crop.
- b) To conduct the work of demarcation to save the forests from encroachment.
- c) To regenerate the forests naturally as well as artificially in order to fill in the blanks created on account of illicit damage.
- d) To check further degradation of forests by taking up measures in order to restore the normal stocking and productivity.

## 11.5. Analysis and Evaluation of Growing Stock

- 11.5.1. The quantative assessment of growing stock and preparation of inventory, in this Working Circle has been made on the basis of the data collected and analyzed from 169 Sample Points selected at Random, located on the ground, surveyed and studied in the field by means of Point Sampling Technique using Wedge Prism.
- 11.5.2. Mean Values of two variables viz. number of stems per hectare and volume per hectare have been computed, diameter class wise and specie wise. Statistical data tests have been summarized in the table below:

Variable (ha)	Sample points (n)	Mean (X)	Variance (S²)	Standard Deviatio n (S)	Standard error (S.E.)	Coefficient of Variation (%)	Confidence limits (95%)(X± 1.96 x S.E.)LowerUpperlimitlimit		Confidence Interval (C.I)	Lower limit as mean (%) of mean
1	2	3	4	5	6	7	8	9	10	11
No. of stems	169	110.51	95886	309.65	23.82	280.20	63.82	157.20	93.38	57.75
Volume	169	103.49	15598	124.89	9.61	113.01	84.65	122.32	37.67	81.80

# TABLE 11.4Statistical analysis of Rehabilitation Working Circle

11.5.3. The diameter Class and species wise distribution of growing stocks assessed on the basis of mean values in terms of total number of trees and volume are summarized in the tables below:

# TABLE 11.5 Statement showing species & diameter (cm) class wise tree count of Rehabilitation Working Circle Tree count per hectare (Mean value) in Nos.

Species	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100	100 & over	Grand Total
Deodar	58.38	3.46	0.91	1.77	1.07	0.46	0.08	0.03	0	0	66.15
Kail	6.01	1.70	1.53	3.37	2.41	1.24	1.56	1.05	0.49	0.79	20.15
Fir	3.96	0.60	2.21	3.28	3.92	2.63	1.54	1.29	0.36	0.38	20.18
B.L.	0	0.15	0	0.07	0	0	0	0	0	0	0.22
Total	68.35	5.91	4.65	8.49	7.40	4.33	3.18	2.37	0.85	1.17	106.70

Specie	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100	100 & over	Grand Total
Deodar	461849.43	27372.37	7199.09	14002.63	8464.87	3639.10	632.89	237.33	0.00	0.00	523318.60
Kail	47545.65	13448.85	12103.97	26660.37	19065.73	9809.75	12341.30	8306.64	3876.43	6249.76	159408.46
Fir	31327.92	4746.65	17483.51	25948.38	31011.47	20806.17	12183.08	10205.31	2847.99	3006.21	159645.80
B.L.	0.00	1186.66	0.00	553.78	0.00	0.00	0.00	0.00	0.00	0.00	1740.44
Total	540723.0	46754.54	36786.57	67165.15	58542.07	34255.02	25157.27	18749.28	6724.43	9255.98	844113.30

 TABLE 11.6

 Tree count over the entire Commercial area of the Working Circle (7911.09 hacs) in Nos.

# **TABLE: 11.7**

#### Statement showing species & diameter (cm) class wise Volume of Rehabilitation Working Circle

Species	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100	100 & over	Grand Total
Deodar	0	0	0.69	2.35	2.24	1.45	0.34	0.17	0	0	7.24
Kail	0	0	1.16	4.58	5.48	4.13	6.88	5.60	3.02	5.34	36.19
Fir	0	0	1.85	5.11	11.65	12.90	10.58	10.71	3.39	3.86	60.05
B.L.	0	0	0	0	0	0	0	0	0	0	0
Total	0.00	0.00	3.70	12.04	19.37	18.48	17.80	16.48	6.41	9.20	103.48

# TABLE: 11.8. Volume over the entire Commercial area of the Working Circle (7911.09hacs) in cums

Species	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100	100 & over	G. Total
Deodar	0.00	0.00	5458.65	18591.06	17720.84	11471.08	2689.77	1344.89	0.00	0.00	57276.29
Kail	0.00	0.00	9176.86	36232.79	43352.77	32672.80	54428.30	44302.10	23891.49	42245.22	286302.35
Fir	0.00	0.00	14635.52	40425.67	92164.20	102053.06	83699.33	84727.77	26818.60	30536.81	475060.95
B.L.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.00	0.00	29271.03	95249.52	153237.81	146196.94	140817.40	130374.76	50710.09	72782.03	818639.59

## 11.6. Method of Executing the Felling

11.6.1. No yield is to be realized from this working circle. Only fallen material markings are to be conducted.

#### 11.7. Realization of Yield

11.7.1. No yield is prescribed from this Working Circle for reasons none-too difficult to appreciate. No healthy tree for reasons howsoever important should be marked from this Working Circle. Such demands should be met from (regulated Working Circle) or even from Sale Depots.

#### 11.8. Methods of Treatment

11.8.1. As is evident, no exploitation of these forests could be possible. In the first instance these forests require complete rest and recuperation through strictest possible protection from biotic interferences, the most important being encroachment, illicit damage, grazing, lopping etc. In the second instance, an ambitious reforestration programme is conceived with the high hope that the department might rise to the occasion and funds might be provided for implementation of the said programme. The total commercial area of the Working Circle works out to be **7911.09** hectares. An annual area of 200.00 hectares is proposed to be reforested preferably distributed in the below given proportion between the various Blocks for each year.

Total	=	<u>200.00 hacs</u>
Romshi Range	=	50.00 hacs
Shopian Range	=	150.00 hacs

11.8.2. The above illustration of treating commercial area of 7911.09 hectares is depicted as under:-

#### **TABLE 11.9**

#### **Annually Treated Area**

S.No.	Particulars	Hacs			
Α	Total Commercial Area available in the Working Circle	7911.09			
В	i ) Untreatable area				
	ii) Area already treated from 2010 onwards including the year				
	2013-14 under various Schemes (CAMPA=640.00, Other	1150.50			
	Schemes=510.50)				
	Grand Total (B)	1943.91			
С	Balance Area that require treatment during the next 30 years	5067 19			
	(in two successive Plans)= (A+B)	5907.10			
	Therefore area to be treated annually	198.90			
d	Say	200.00			

11.8.3. Since the Division has a potential threat of encroachment and in order to check the further advances around 25% of the above uncovered area i.e. 1491.79 hectares near and around habitations particularly Zawoora, Sedow, Hirpora, Nasarpora etc.

need to be closed by Chain link Fencing and rest 75% i.e. 4475.39 hectares to be closed by Angle Iron using Barbed wire fencing.

11.8.4. Obliviously there will be constraints on the theoretical distribution of rehabilitation work given above. Two important constraints are conceivable at the outset, namely, availability of funds and possibility of the extent of closures, planting stock etc. at a particular moment. As for as the funds are concerned, the department had to think of providing a-lions share out of ongoing CAMPA, 13<sup>th</sup> Finance Commission, IFM etc. Schemes so that the forests of Shopian which have undergone massive degradation because of past maltreatment are rehabilitated back to their vigour, life and luster mostly through such aids as strict closure to grazing, inducing natural regeneration, working in soil and patches, racking of humus, uprooting of weeds or even artificial regeneration of sowing & Planting of most suited species among Kail and Deodar particularly in the areas like compartment Rb-19, Rb-22, Rb-24, Ri-24, where such experiments have proved very successful in the past. Regarding the availability of planting stock, the Division at present is having very good Conifer as well as Broad leaved Nursery that I am sure shall be able to provide the requisite planting material of around 3.30 lakh plants per year required to rehabilitate proposed 200.00 hectares of forest land annually.

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S.No.	Item of work	Area to be treated per annum	Rate/ hac (in lacs)	Financial implication (in lacs)		
01.	Chain Link Fencing with Planting	50.00	2.50	125.00		
02.	Angle Iron Fencing with Planting	150.00	1.10	165.00		
	Total	200.00		290.00		

TABLE 11.10Annual Financial Forecast:

- 11.8.5. An annual forecast of Rs.290.00 lacs for rehabilitating the degraded forests of 200.00 hectares annually is affordable and can be tailored out of various Schemes presently in operation in Jammu & Kashmir State viz CAMPA, 13<sup>th</sup> FCA, IFM, State and District Sector Schemes etc.
- 11.8.6. Some sporadic and desultory attempts at rehabilitation have been made in the past 10 20 years or so in these forests like compartment Rb-19, Rb-20, Rb-21, Rb-22, Rb-23, Rb-24, Rb-1, Rb-2 etc have been closed under the rehabilitation of degraded forests programme. But the desired results could not be achieved and at present nothing concrete exists there. The watch and ward of these closures is the biggest problem in the Division. However, closures developed after 2010 under CAMPA and other Schemes look promising where proper watch & ward and after care has been assured.

- 11.8.7. To achieve the above objectives, it is essential to protect these forests from further deterioration. Following treatments are suggested during this plan period.
  - 1. Closing the area with fencing followed by sowing and planting of suitable species in a phased manner. The open and blank areas shall have to be restocked artificially. The whole area is prescribed to be taken up during two successive Working Plan periods.
  - 2. The forest area will be given complete rest in order to improve natural stocking and site quality.
  - 3. Plantations will be raised in these areas to meet the local demands of fuel, fodder and small timber and to reduce the pressure on natural forests.
  - 4. The demarcation pillars will be erected where ever missing in order to save forests from encroachment.
  - 5. In the areas having crop cover, the sowing and under-planting of deodar and kail is suggested with preference to be given to kail on exposed sites and southern aspects and to deodar on well-drained sites having fair degree of side shade. Along the areas towards habitation, strip planting of *Robinia*, *Ailanthus*, *Ash*, *Aesculus*, *Juglans etc* will be suitable.

# CHAPTER-XII Working Plan for the Ecological Conservation Working Circle

# 12.1. General Constitution of the Working Circle

12.1.1. The working circle comprises of all high lying areas above 10,000 feet altitude which have steep to precipitous slopes and rugged topography. It includes high-lying Fir-Kail forests and alpine pastures. These forests are commercially un-exploitable and are retained as protection belt. The stocking of these forests is poor in quality as well as quantity and are unworkable for purpose of National Land (erosion) safeguard and Water moisture Conservation. The constitution of this Working Circle is almost identical with that of Protection Working Circle of previous Plan.

 Table :12.1

 Showing comparison of area in the present Plan and the Plan under revision

Plan	Compartments	Commercial Area	Blanks and Un-commercial Area	Total Area
Previous	Ri-3b, Ri-4, Ri-5a, Ri-12b, Ri-13, Ri-14, Ri-15a	1710.30	2087.00	3797.30
Current	Ri-3b, Ri-4, Ri-5a, Ri-10, Ri-11, Ri-12b, Ri-13, Ri- 14, Ri-15a, Ri-21, Ri-22	2905.12	6262.28	9167.40

# 12.2. General Character of the Vegetation

- 12.2.1 The Fir constitutes the main crop of working circle. The broad leaved associates like Ash, Maple, Bird cherry and Walnut are confined to Nalla bank, depressions and cooler aspects. Some solitary Birch trees are found scattered above the upper limit of Fir zone. The alpine pastures support luxuriant ground flora with occasional woody form bushes like Rhododendron and Junipers etc. These forests are subjected to heavy damages by unrestricted grazing by both nomadic and local graziers.
- 12.2.2 The forests are open and having stunted growth. The herbaceous flora forms source of variety of important medicinal plants like *Sussurea lappa* (Kuth), *Dioscoria, Aconitum heterophullum* (Patris), *A. chresentum* (mohri), *Podophyllum spp.,* (Bankhakhri) *and Jurinea macrophylla* (Dhoop) *etc.*
- 12.2.3 The distribution of stems over various diameter classes and its comparison with normal distribution is given in the below table:

TABLE 12.2 Normal and actual distribution of stems over diameter classes – Ecological Working Circle

Diameter Class (cm)	10	20-30	30-40	40-50	50-60	60-70	>70-80
Normal distribution %	41	25	15	9	5	3	2
Actual distribution %	2.622	9.339	17.313	12.787	13.362	12.68	31.897

12.2.4. From the above table, it is obvious that there is considerable deficiency of trees in the lower diameter class and higher proportion in the middle diameter classes and considerably very higher proportion in the mature and over mature classes.

#### 12.3. Area and Allotment

12.3.1. The statement of compartment/ sub-compartments allotted to this Working Circle is tabulated under Appendix -V

#### **TABLE: 12.3**

#### Range Wise abstract of the area under Ecological Conservation WC Circle

Range	Commercial Area					Blank & Un-	G. Total
	Deodar	Kail	Fir	<i>B.L</i> .	Total	commercial	
Shopain	0	0	0	0	0	0	0
Romshi	0	0	2789.12	116.0	2905.12	6262.28	9167.40
G. Total	0	0	2789.12	116.0	2905.12	6262.28	9167.40

12.3.2. The area allotted to this Working Circle works out to be 27.50 % of the total area of this Division. Out of the total area of this Working Circle 31.07 % is commercial and remaining 68.93 % is Blank and uncommercial. The density of forest cover is very low.

# 12.4. Objectives of Management:

- 1. To conserve and maintain the existing conifer crop.
- 2. To preserve all life forms so that soil and water regime is not affected.
- 3. To retain all existing crop in order to prevent erosion, landslips and avalanches.
- 4. To preserve forests for soil and moisture conservation.
- 5. To check degradation of forests by taking up measures in order to restore the normal stocking and productivity.
- 6. To protect forests from excessive grazing, forest fires and illicit damage.

# 12.5. Analysis and Evaluation of Growing Stock:

12.5.1. The quantative assessment of growing stock and preparation of inventory, in this Working Circle has been made on the basis of the data collected and analyzed from 90 Sample Points selected at Random, located on the ground, surveyed and studied in the field by means of Point Sampling Technique using Wedge Prism. Mean Values of two variables viz. number of stems per hectare and volume per hectare have been computed, diameter class wise and specie wise. Statistical data tests have been summarized in the table below:
## **TABLE 12.3**

## Statistical analysis of Ecological Conservation Working Circle

Variable (ha)	Sample points (n)	Mean (X)	Variance (S²)	Standard Deviation (S)	Standard error (S.E.)	Coefficient of Variation (%)	Confidence la (X± 1.96 Lower limit	imits (95%) x S.E.) Upper limit	Confidence Interval (C.I)	Lower limit as mean (%) of mean
1	2	3	4	5	6	7	8	9	10	11
No. of stems	90	27.84	123.37	43.86	4.62	157.33	18.78	36.90	18.12	67.45
Volume	90	110.66	17977.4	134.08	14.13	121.16	82.96	138.35	55.39	74.97

12.5.2. The diameter Class and species wise distribution of growing stocks assessed on the basis of mean values in terms of total number of trees and volume are summarized in the tables below:

## **TABLE 12.4**

Statement showing species & diameter (cm) class wise tree count of Ecological Conservation Working Circle Tree count per hectare (Mean value) in Nos.

Species	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100	100 & over	Grand Total
Deodar	0	0	0	0	0	0	0	0	0	0	0
Kail	0	0	0	0	0	0	0	0	0	0	0
Fir	0.73	2.46	4.82	3.56	3.72	3.42	3.70	2.19	0.88	2.11	27.59
B.L.	0	0.14	0	0	0	0.11	0	0	0	0	0.25
Total	0.73	2.6	4.82	3.56	3.72	3.53	3.7	2.19	0.88	2.11	27.84

### **TABLE 12.5**

Species	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100	100 & over	G. Total
Deodar	0	0	0	0	0	0	0	0	0	0	0
Kail	0	0	0	0	0	0	0	0	0	0	0
Fir	2120.74	7146.60	14002.68	10342.23	10807.05	9935.51	10748.94	6362.21	2556.51	6129.80	80152.26
B.L.	0.00	406.72	0.00	0.00	0.00	319.56	0.00	0.00	0.00	0.00	726.28
Total	2120.74	7553.31	14002.68	10342.23	10807.05	10255.07	10748.94	6362.21	2556.51	6129.80	80878.54

#### Tree count over the entire Commercial area of the Working Circle (2905.12 hacs) in Nos

#### **TABLE 12.6**

## Statement showing species & diameter (cm) class wise Volume of Ecological Conservation Working Circle

							/				
Species	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100	100 & over	G. Total
Deodar	0	0	0	0	0	0	0	0	0	0	0
Kail	0	0	0	0	0	0	0	0	0	0	0
Fir	0	0	4.05	5.55	11.05	16.77	25.35	18.17	8.24	21.51	110.69
B.L.	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	4.05	5.55	11.05	16.77	25.35	18.17	8.24	21.51	110.69

Volume per hectare (Mean value) in cums

 TABLE 12.7

 Volume over the entire Commercial area of the Working Circle (2905.12 hacs) in cums

Species	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100	100 & over	G.Total
Deodar	0	0	0	0	0	0	0	0	0	0	0
Kail	0	0	0	0	0	0	0	0	0	0	0
Fir	0	0	11765.74	16123.42	32101.576	48718.86	73644.79	52786.03	23938.19	62489.13	321567.73
B.L.	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	11765.74	16123.41	32101.576	48718.86	73644.79	52786.03	23938.19	62489.13	321567.73

## 12.6. Method of Treatment

- 12.6.1 In view of the above objects of management, the following treatments are prescribed for compartments falling in this working circle.
  - 1. No treatment, except complete rest is prescribed to these forests.
  - 2. No fellings of whatsoever nature shall be allowed in these areas.
  - 3. The strict protection against illicit fellings, lopping and forest fires is to be ensured.
  - 4. The grazing should be allowed on rotational basis by closing a part of area over a period of time to recuperate it and minimize the incipient sheet erosion which later on leads to formation of rills and gullies.
  - 5. The dry stone masonry works should be executed at sore spots to plug the gullies and stop their further deepening.
  - 6. The blanks within the cropped zone should be stocked artificially by Kail and Fir sowing and H.C. nut dibbling.
  - 7. The patch sowing of grasses should be done on sheet erosion affected blank areas in pasture lands in autumn months.

## CHAPTER-XIII Working Plan for the Wildlife Management (Overlapping) Circle

## 13.1. General Constitution of the Working Circle

- 13.1.1. The management and protection of forests are integrated with the management and protection of wildlife. So this working circle has been formed for protection and conservation of the wildlife found in the forests as well as non-forest areas of the Division. This overlapping working circle is formed to improve the habitat of wildlife where wildlife activities are witnessed and effective measures undertaken to mitigate the man-animal conflict which is of regular occurrence in the area.
- 13.1.2 Because of varied altitudinal zonation prevailing in the tract a variety of Fauna is found in the Division. The ever increasing pressure on human population is responsible for the sharp decline of faunal population. Excessive interference by the graziers and their large herds of grazing animals also account for decline of some species of wild animals. Deforestation and consequent habitat reduction is also responsible for sharp reduction in their numbers. The Division is bestowed with harboring one of the famous Sanctuaries of the State known as Hirpora Wildlife Sanctuary which falls in the distributory Range of the "MARKHOR", Capra falconeri, a schedule 1 species and a member of the international IUCN's red data book. The distribution of Markhor in Jammu & Kashmir is restricted only to a few pockets in the Valley including Hirpora in the South and Limber/ Lachipora area in the North. Hirpora Wildlife Sanctuary has a distinction of harboring an appreciable number of remaining viable population of this rare species. The surroundings of old historic Mugal road connecting the Kashmir Valley to the Jammu region has a distinction of harboring around 50 odd individual mammalian and other species including some rare ones. The important species of Wildlife found in the Division have already been enlisted and described in detail in PART-I (Chapter-IIB).

#### 13.2. General Character of Vegetation

- 13.2.1. The Wildlife habitats of the Division are the Forests having the Principal Conifer species like Kail and Fir as the main crop with occasional broad leaved associates like Ash, Maple, Bird cherry and Walnut confined to Nalla bank, depressions and cooler aspects. Some solitary Birch trees are found scattered above the upper limit of Fir zone. The alpine pastures support luxuriant ground flora with occasional woody form bushes like Rhododendron and Junipers etc.
- 13.2.2. The herbaceous flora forms source of variety of important medicinal plants like Sussurea lappa (Kuth), Dioscoria, Aconitum heterophullum (Patris), Aconitum. chresentum (mohri), Podophyllum spp., (Bankhakhri) and Jurinea macrocephyla (Dhoop) etc.

## 13.3. Special Objective of Management

- 13.3.1. This will be an overlapping working circle constituted mainly to ensure that silvicultural prescriptions of the working plan are in harmony with requirement of wildlife and its habitat. The specific objectives of this working circle are
  - a) To assess the status of the Wild animal species with emphasis on Markhor, Brown bear, Snow leopard, Mask Deer, Wolf etc.
  - b) To protect and restore habitats of species like Markhor, Brown Bear, Wolf, Snow leopard, Mask Deer etc.
  - c) To protect and restore the medicinal plants unique to the Division.
  - d) To stop the non-traditional herders and the non-traditional ways of grazing.
  - e) To promote eco-developmental activities for reducing the dependence of people on natural forest resources and encourage sustainable eco-tourism in identified areas of the Division.
  - f) To mitigate human-wildlife conflict in and around the Division.
  - g) To strengthen surveillance and protection measures.
  - h) To preserve and protect historical monuments in the Division particularly in and around historical Mugal Road (Sukh-Sarai, Ali-Abad Sarai).
  - i) To improve attitude of local communities to wildlife Conservation and publicizing their importance.

#### 13.4. Legal Position

13.4.1. The Wildlife (Protection) Act, 1972 is in force for protection and conservation of Wildlife in Jammu & Kashmir. Under the above act, the forest officers have been duly empowered for implementation of the policies of protection & conservation of Wildlife as the Wildlife Wardens. The junior officers are vested with the powers of detection of illegal wildlife crime. They are required to report to the Chief Wildlife Wardens for taking necessary actions and drawing of Wildlife Offence Reports.

#### 13.5. Rights and Concessions:

13.5.1. No rights and concession in respect of wildlife have been recognized.

#### 13.6. Hunting and Shooting:

13.6.1. Hunting, shooting and capturing of wild animals and birds are not allowed. However, Chief wildlife warden of the state is empowered under the Act to permit shooting of any animal which become dangerous for the human life.

#### 13.7. Improvement of Habitat

13.7.1. *Plantations for shelters:-* The plantations may be raised at some important places for shelter of the animals if such tree cover do not exist. Beside, scattered vegetation covers may be created by raising plantations throughout the forest areas for facility of the extension of the habitat of the wildlife.

- 13.7.2. *Raising of grass plantations for Herbivores:* Palatable grass plantations for herbivores may be raised in a scattered manner for keeping such animals inside forest and saving the agricultural crops of the adjoining farmers crop field.
- 13.7.3. *Raising of Fruit Trees for Birds:* Some trees like Walnut, cherry, Fig, Horse chestnut species etc whose fruits are eaten by the birds should be raised in scattered manner throughout the forests if such trees are found deficit.
- 13.7.4. *Water Holes:-* Water is a problem in summer. So it is necessary to dig up some ponds or tanks at some important points for the facility of making the drinking water available to the animals in summer months.
- 13.7.5. *Salt Licks:* The herbivores suffer from salt deficiency. So it will be better to have some salt Licks at some convenient places for herbivores. The regulated intake of salt will improve the health of the herbivore and other animals.

#### 13.8. Injuries to Which Wildlife is Liable

- 13.8.1. **FIRE :** Fire destroys the vegetation and the resting sites of the wild animals. In the months of Autumn, fire may sweep through the forests, as the forest floor is very dry. Besides, grass collectors set fire after collection of grass to get vigrous shoots next year & the fire spread from there.
- 13.8.2. **Grazing:** Grazing is rampant all over the forest and reduces the forage available for wildlife besides physically trampling their niches.
- 13.8.3. **Poaching:** Poaching is not common in Shopian Forest Division.

#### 13.9. Management of Man Animal Conflict

- 13.9.1. In the last decade or so, there has been an unprecedented rise in instances of human Wildlife conflict in the territorial jurisdiction of this Division. Conflicts can occur when a Black Bear, or leopard attack and kill livestock while camping in the forest. Alternatively, conflicts also occur when Wild animals visit villages like leopard lifting a goat or Black Bear walking into an orchard or a corn field with the intension of consuming the fruit or corn and getting exposed to humans. This interaction then leads to negative interaction between animal and human.
- 13.9.2. Whereas it is difficult to reduce such interactions, the negative impacts of such events can be reduced by good and timely management of the problem. Quick response by trained man power is the key to reducing damage through such interactions and as such a motivated and mobile conflict mitigation squad is necessary, especially when an animal invades human dominated landscapes. Once the teams are formed, their equipping and capacity building is also equally important. To accelerate the process of conflict mitigation, a dedicated Control Room is undeniable, as these are often the first ports of call. Hence setting of such Control Rooms is proposed with ensured availability of equipments and mobility to capture / rescue an animal at Range Head Quarters.

# 13.10. Proposed activities to mitigate human-wildlife conflict in the Division

- a) Ex-gratia for loss of human lives.
- b) Setting up of rapid response teams and a Control Room for managing human wildlife conflict.
- c) Procuring tranquilization equipments, accessories, drugs, trapping and transport cages and rescue equipments.
- d) Training of front line forest staff and PRT members.
- e) Establishment of a transit rescue treatment.
- f) Creating awareness about preventive measures during instances of human wildlife conflict.
- g) Developing and implementing an insurance scheme for the crop and livestock depredation.
- h) Setting up of rehabilitation Center including provision for Veterinary care.

#### 13.11. Surveillance and Protection Measures

- 13.11.1 Following activities are proposed to strengthen surveillance and protection measures:
  - a) Form patrolling squads from local villagers to supplement the existing staff.
  - b) Strengthening of informer network by engaging part time informers.
  - c) Conduct of capacity building and training of front line staff and the civil society for patrolling and antipoaching enforcement.
  - d) Stopping the nontraditional graziers from camping and grazing in the Wildlife habitat area.

## CHAPTER-XIV Working Plan for the Joint Forest Management (Overlapping) Working Circle

## 14.1. General Constitution of the Working Circle:

- 14.1.1. This working circle has been formed for implementation of the policies and guidelines of the Joint Forest Management formulated by Central and State Governments. A large part of this Division has potential for developing into good JFM working areas. However stress may be given to those where there are more barren areas in the form of degraded forest, institutional land or wasteland, as well as area prone to illicit damage. This selection may be judiciously done by Divisional Forest Officer to create sense of responsibility towards the forest and to suit the needs of protection of state's valuable forests.
- 14.1.2. For the first time in 1988, National Forest policy of India recognized the need to provide greater control to local communities over forests and their resources and to integrate conservation and development through and active participatory role of local people. This concept of involving local communities in the protection, development and regeneration of the forests came to be known as *"Joint Forest Management (JFM)"*. The JFM was formally adopted in Jammu & Kashmir State by issuing a notification vide SRO-61 dated:19-03-1992

## 14.2. Government Policy on JFM:

- 14.2.1. The Government of Jammu & Kashmir passed a resolution vide Notification No.SRO-61 of 19-3-1992 for the constitution of JFM committees. All the JFMCs in each forest Division are coordinated under the *Forest Development Agency (FDA's)* for that particular Division. The main objectives of this agency are:-
  - Conservation, management and increase in the forest cover in the project area, in a sustainable manner.
  - Conservation of soil and water in the project area.
  - Employment generation through creation of productive community assets.
  - Formation of village level committees which will carry out the activities mentioned above.
  - Employment generation to most needy section of the society, particularly women, SC/ST and landless labourers and encourage them to be self-sufficient.
  - To train the rural women in income generating activities and to improve their social, economical and health conditions.

- To avail the alternative sources of energy to the rural people, and subsequently decreasing their dependence on forest for fuel.
- To inculcate the idea of conservation of natural resources among the members of JFMs and other people.
- To ensure the active people participation in the implementation of the different objectives of the project.
- To share the usufructs with the local people.

#### 14.3. Implementation of JFM in Shopian Forest Division

- 14.3.1. The natural forests have deteriorated alarmingly due to illicit felling, encroachment, grazing and absence of regeneration. The plantations raised artificially could not be protected to their rotation ages. Constraint to protection of forests is mainly due to the close vicinity of the forest with human habitations.
- 14.3.2. The forest of Shopian have gone through a sea change in extent, quality, composition, spatial distribution and status. By dint of inheriting a historically notorious back ground of harboring reckless professional timber smugglers certain forest areas witnessed wonton destruction, irreversible in a way. The situation has come to such a stage were realization has dawn that forest resources cannot be preserved without involving the populace inhabiting around, in implementation and evaluation of Schemes relating to development and protection of forests.

#### 14.4. Problems faced With JFM

- 14.4.1. While the concept of JFM was catching up in 90's in rest of the Country, the State was in the grip of militancy. Although some headway was made in the Jammu region, but in the Valley formation of VFC's could not be taken up with the required zeal.
- 14.4.2. Secondly the VFC members usually considered membership of such communities as an opportunity or stepping stone for future appointments in the forest department which when not achieved disappoints and dis-functions such members.
- 14.4.3. There has definitely been a lack of proper successful blending of the department and the communities with a common aim of improving the forests for the good of the community. For a success model, the staff has to sincerely and regularly interact with the communities right from planning stage upto its implementation. Otherwise, the programme is bound to fail if there is no consensus on the methodology of development and the choice of species on the project area.
- 14.4.4. VFC's which are expected to protect their JFM forest from willful damage, theft, encroachment, grazing and any Act prejudicial and detrimental to the interests of the forests, have necessarily to be benefited from sharing the benefits for which collaborated schemes need to be formulated.
- 14.4.5. Commensurate with this objective Shopian Forest Division too had initiated constitution of Village Forest Committees, wherein people residing adjacent to and around forest areas were consulted and motivated to actively participate in

development, preservation and protection of forests by formulation of 30 VFC's in four territorial Ranges viz. Shopian, Romshi, D.H. Pora and Veshue during the year 2004-05 and 2005-06. However, later in the year 2009-10 due to the creation of Special Division Kulgam 14 number of VFC's were transferred alongwith Veshue and D.H.Pora Ranges. Thus only 16 number VFC's are presently in operation in Shopian Forest Division. Although some forest areas have been treated under this concept by involving the local people through the above mentioned VFC's but desired results have not been achieved and the closures developed have not lost long.

IADLE 14
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## The name and the number of VFC's registered in the Division are depicted below in table:

S. No	Range	Name of VFC
1	Shopian	Chotipora
2	Do	Sedew-A
3	Do	Sedew-B
4	Do	Borihallan
5	Do	Sadipora
6	Do	Chanderanji
7	Do	Hirpora
8	Romshi	Mughpathri
9	Do	Mastpora
10	Do	Nagwan
11	Do	Keller
12	Do	Shadimarg
13	Do	Chawan
14	Do	Batmaran/Berthipora
15	Do	Thairna
16	Do	Zampathri

14.4.6. The compartments and sub-compartments allotted to Rehabilitation Working Circle which were degraded due to past maltreatment can effectively be tackled by active participation of local people living in and around such forests by ensuring successful blending of the staff concerned and the communities with a common aim of improving the forests for the good of the community. In order that the JFM in the Division becomes a success model, it should be ensured that there is a consensus on the methodology of development and choice of species by effective, sincere and regular interaction among the staff and the communities involved. The VFC's should be involved right from planning stage upto its implementation stage. Besides compartments under Rehabilitation Working Circle, the JFM will also form a part of Plantation Working Circle, NTFP Working Circle etc.

#### 14.5. Suggestions for Successful Implementation of JFM

14.5.1. The local communities will under no circumstances appreciate closure of a forest area by foregoing their immediate need of fuel wood, fodder, timber etc. in the hope

of better deal in future. Therefore, in a JFM Programme, provision of alternative source of fuel wood, timber, fodder needs to be kept in mind.

- 14.5.2. The local communities not only meet their requirement of fuel wood, fodder and timber from nearby forests but also make some livelihood out of it. So In order to involve them in forest protection, besides Entry Point Activities, some alternative wage employment needs to be provided to compensate for the income loss due to closure of forests.
- 14.5.3. Villagers are mainly dependent on forests for their grazing. Complete refusal to grant them a space for grazing by closing entire areas is counterproductive. Some areas should always be left open for rotational grazing to allow the people to continue grazing their small livestock.
- 14.5.4. The VFC activities should be extended to NTFP management for promoting regeneration, development and sustainable harvesting of NTFP which can be given to them on concessional rates or in a benefit sharing mechanism, with an aim to ensuring multi-oriented and more NTFP oriented approach, without changing the basic principles of silviculture by adopting improved silvicultural practices.

#### 14.6. Special Objectives of Management

- To give adequate protection to the existing forest resources in the Division through effective people's participation.
- To maintain and improve the quality of the environment, that is, the existing vegetation/tree cover should be maintained for the conservation and improvement of the environment and for the better living condition of human beings.
- To reduce the pressure on the forests by diverting the pressure with the alternative sources of energy.
- To manage the forests in such a way that there is effective sharing of usufructs with the people in a sustainable manner.
- To create awareness among the people about the importance of the forest resources/ tree cover for a better future to humanity.

## CHAPTER-XV Working Plan for the NTFP (Overlapping) Working Circle

## 15.1. General Constitution and Character of Vegetation

- 15.1.1. This working circle includes all areas having abundance of Medicinal Plants both within and outside demarcated forests. It comprises of alpine and subalpine areas (3000m to 3800m) where silver fir and birch trees dominate the Vegetation. The compartments allotted to Fir Selection working Circle and Ecological Conservation Working Circle also harbor the colourful alpine herbs with various medicinal uses. In addition areas from other Working Circles are also included to a lesser extent and thus overlaps with other Working Circles.
- 15.1.2. The forests of Shopian Forest Division are bestowed by nature with wide varieties of medicinal plants, which occur throughout the forest in varying proportions. However, unscientific and unrestricted exploitation resorted to in the past, mostly in the lower belts have considerably reduced these medicinal plants. The high pasture lands and areas around glacial moraines sustain many species of medicinal plants. The most commonly found plants of medicinal value found in these forest are *Aconitum heterophyllum, Dioscorea deltoidea, Arthemesia absinthum, Datura stramonium, Saussurea costus, Meconopis aculeate, Geum elatum, Jurinea macrocephala, Codonopsis ovate, Picrorhiza Kurroo, Potentilla spp., Corydalis govaniana, Saxifraga ligulate etc.*

## 15.2. Special Objects of Management

- To maintain and conserve the medicinal plants in the area by enforcing strict control over exploitation of such species.
- To rehabilitate and develop the over-exploited areas where medicinal plants previously grew in abundance by resorting to natural or artificial means, wherever necessary.
- To increase resource area of medicinal plants by resorting to cultivation of these in farms, in suitable localities including degraded forests treated under JFM.
- To preserve and multiply the rare and threatened species by establishing nurseries at suitable sites.

## 15.3. Methods of Treatment Proposed

- 15.3.1. In order to achieve the objects of management the following measures are required to be taken:
  - Cultivation of medicinal plants be taken up in suitably identified localities.

- The proper techniques for cultivation, harvesting and storage of medicinal plants need to be developed, standardized and implemented.
- To ensure better and effective control, special seasonal check posts should be established in selected areas.
- There is urgent need for amending the Kuth Act to promote the private cultivation of medicinal plants covered under this Act.

## 15.4. Medicinal Plant Conservation Area (MPCA)

- 15.4.1. Medicinal Plant conservation areas (MPCAs) are the sites, which capture the specific medicinal plants diversity existing in the forest habitate. MPCAs can serve as study sites to learn about the presence of medicinal plants as well as insitu gene bank of the medicinal plants of the State. Thus, there is urgent need of formation of MPCAs in Shopian Forest Division, which should be viewed as sites of research, conservation and educational activities. To begin with, the following compartments are proposed to be taken as MPCAs.
  - 1. Rb-19
  - 2. V-5
  - 3. V-6
  - 4. V-7
  - 5. Ri-14
  - 6. Ri-15

## 15.5. Prescriptions For Laying Out of MPCAs

- In the beginnings, it is advisable to take smaller areas as demonstration plots, preferably of about 15 20 hectares size for effective management.
- The area should be properly fenced for effective protection against grazing, which in any case shall not be allowed in such areas.
- Rigid protection from biotic interference should be given by forming local management committees on the lines of Village Forest Committees.
- No removal shall be permitted from an MPCA except for the collection of seeds or propagules for multiplication. Such collection shall be minimal.
- Floristic survey shall be carried out in the area by expert hands and local botanist.

## 15.6. Concept of JFM in Conserving & Propagation of Medicinal Plants

15.6.1. The concept of Joint Forestry Management for conservation and propagation of medicinal plants can be applied both for forest areas as well as areas outside the forest like private herbal gardens, school herbal gardens, community herbal gardens etc. There is an immediate need to educate the people about the economic and health benefits of medicinal plants to motivate them for their commercial propagational practices. The degraded forests and private areas adjacent to these

forests can be converted into herbal gardens where the medicinal plants could be grown jointly by the forest department as well as the local panchayats. The department shall lateron formulate the rules for sharing the benefits of such gardens. The village "Botanists and Hakeems" could be involved in such practices to give a boost for its successful implementation. These areas could serve as demonstration plots as well as nurseries to educate the people about the medicinal plants and their propagation techniques.

#### 15.7. Training of Field Staff

- 15.7.1. The medicinal plants existing in Shopian Forest Division are a natural resource and not much has been done to raise these in artificial conditions. The need for training of staff, therefore, is of paramount importance sofar, as the technique of raising these plants in nurseries etc. is concerned. The training of Staff shall include:
  - 1. Identification of medicinal plants of the area.
  - 2. Medicinal uses of the important medicinal plants.
  - 3. Species which need special attention like rare and threatened one and species in high trade.
  - 4. Assessing the plants for primary health case use by locals.
  - 5. Inventorisation and resources assessment by sampling techniques.
  - 6. Seed collection, propagation and nursery techniques of important medicinal plants of the Division.

#### 15.8. General

- 15.8.1. Due to general devastation of forests in the Division, the habitat for the medicinal herbs has been degraded resulting in their low production as also the extinction of some of the species. Additionally, with the increase in demand for these medicinal herbs in the National and International markets, there has been an uninterrupted exploitation of these resources particularly, through illegal channels. It is the alpine and high temperate forest region of the Division which is comparatively rich in minor forest produce. This entire area needs to be protected against biotic interference in order to promote the growth of MFP's. The main area of attention therefore would be to create greater resources of MFP's through massive plantation, depending on the demand of particular MFP. Number of demonstration plots are proposed to be laid out in Ecological niches of MFP's and the nursery techniques of raising MFP's, so that their regeneration techniques and harvesting are standardized. Extensive plantation of important and marketable MFP's need to be undertaken within the forest areas and other wasteland and degraded forest sites. It is proposed to take up the following MFP's in the first phase.
- 15.8.2. Diascorea spp., Rauwolfia serpentine, Digitalis purpurea, Aconitum spp., Voila spp., Berberis aristata, Atropa belladona, Artemesia spp., Punica granatum, Pyrethrum spp., Podophyllum spp., Ephedra spp., Aegle marmelos, Pohu spp., Burnium

persicum, Phyllanthus emblica, Tamarind spp., Crocus sativa, Dendrocalamus strictus, Arundneria falcate, Terminalia bellerica etc.

15.8.3. Shopian Forest Division has considerable potential for conservation of existing areas as well as formation of new cultivation areas and nurseries of prominent and marketable MFP's.

## CHAPTER-XVI Working Plan for the Plantation (Overlapping) Working Circle

## 16.1. General Constitution of the Working Circle

16.1.1. In this Working Circle are included all the areas which are needed to be treated either by plantation or by assisted natural regeneration. The compartments under Rehabilitation Working Circle form a part of this working circle. Similarly the compartments which have been effected by wind storm of 2012-13 and suffered a huge degradation, where timber is being extracted would also be treated under this working circle. The areas which will be managed by Joint Forest Management Committees will also form a part of this Working Circle. This Working Circle will give the overall plantation requirement of the Division. The forest areas diverted for nonforestry purposes under Jammu & Kashmir Conservation Forest Act-1997, where there is a provision for Compensatory aforestation will definitely form a part of this Working Circle.

## 16.2. Objectives of Management

- To restock the degraded and other affected areas through scientific regeneration techniques.
- To take up Soil and moisture Conservation activities in these areas to prevent soil erosion and to improve the soil moisture regime.
- To check and arrest encroachment in the habitation areas in and around the forest fringe.
- To provide employment opportunities to communities through JFM mode.

## 16.3. Distribution of the Area

16.3.1. It is known to one and all that disastrous wind storm occurred from Pir Panjal Pass on 19/20-03-2012 thus declared as natural calamity has caused enormous damage to the Forests of Shopian Division in particular and other divisions in general. The devastation thus caused by the wind storm by felling/ uprooting of trees to a very large scale throughout whole division became a big challenge for entire divisional machinery to ensure its watch and ward and enumeration thereof. Unfortunately, one more wind storm occurred on 5<sup>th</sup> of June 2012, which caused further damage to our Forests. The total damage caused due to such wind storms over an area of 3607.50 hectares aggregates to 5518492 cfts. All the compartments which suffered due to this alarming wind storm need to be rehabilitated in a massive scale. Since most of these compartments form a part of Fir Selection Working Circle, a brief Plan for rehabilitation of these forests is reproduced hereunder:-

## **TABLE: 16.1**

## Annual Estimated expenditure for Plantation and cultural operations in Fir Selection Working Circle (Compartments that suffered due to Wind Storm of 2012-13).

Rs. i	in 1	Lakhs
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S.No.	Working Circle	Area (hac)	Per ha Cost	Total Cost
Ι	Fir Selection Working Circle	265		
IA	20% Annual coupe (265 hac) – ANR with fencing	53	0.75	39.75
IB	20% of Annual coupe (265 ha) – ANR without fencing	53	0.50	26.50
IC	20% of Annual Coupe (265 ha) – Cultural Operations	53	0.20	10.60
	Total			76.85 Say 77.00

- 16.3.2. An amount of Rs.77.00 lacs (Seventy seven lacs) per annum for rehabilitating these wind storm affected compartments must be conceived and should be a top priority of the department, so that massive aforestation on war footing basis is carried out and the damage inflicted is compensated to some extent so that these ill fate forests get some solace.
- 16.3.3. Similarly treatment proposed for aforestration of compartments assigned to Rehabilitation Working Circle has been dealt in detail in Chapter-XI.

## 16.4. Choice of Species

16.4.1. The planting stock for meeting out the large scale plantation requirement will be met through the nursery established at Nagbal which has a potential of producing around one lakh Conifer and two lakh Broad leaved plants annually. One new nursery or extension of the Nagbal Nursery is likely to be proposed in the coming financial year 2014-15, so that the requisite plant production capacity of two lakh Conifer and three lakh Broad leaved species *(totaling five lakh plants)* are assured annually. Similarly, there is need for establishing high altitude Nursery for producing Fir and Spruce saplings in the near future.

## 16.5. Nursery and Plantation Techniques

16.5.1. Conifers

#### 16.6. Cedrus deodara

#### 16.6.1. Nursery Technique

The deodar cones ripe in the month of October – December, should be collected by hand dried. Seeds are threshed out and can be stored until sowing. The seeds are oily and their viability remains only for few months. An average sample of one kilogram contains 7,000 to 8,000 seeds. Germination percent is very high, around 90 percent with the fresh seeds. Germination starts in spring but may take four to five months to complete. The seeds can be sown in the beds directly in the month of November. It can also be directly sown in poly bags. Atleast 2-3 seeds should be sown in each of the poly bags. The poly bags of size 6" X 9" is being used for raising of Conifer seedlings. The potting mixture is prepared by mixing sieved soil, river sand, decomposed farmyard manure and forest soil in the ration of 7:1:1:1. The farmyard manure is added to improve the fertility of soil. The forest soil is added to improve the micro flora of the rooting medium. In the open areas, it is always recommended to create overhead thatching to allow diffused sunlight as the tender plants cannot withstand the scorching sunlight in the first year. Germination begins after 2-3 months.

#### 16.6.2. Planting Technique

Planting has to be done in the month of November. Winter planting before Chilai Kalan (severe winter from 15<sup>th</sup> of December to 30<sup>th</sup> of January) can give good results. If that is not possible due to some reasons, it can be done in the month of February – March. Two to three year old plants alone should be used for planting to ensure good survival. Thorough weeding and cleaning is required for 2-3 years. Early and frequent thinning is also needed. Beating up operation is also to be done to ensure good stocking.

#### 16.7. Pinus wallichiana

#### 16.7.1. Nursery Technique

Cones ripe during September to November. They should be collected from the trees, dried in the sun or kiln and seeds be extracted by shaking or beating the cones. Seeds can be stored after air drying for 12 to 18 months. A kilogram contains about 17000 – 18000 seeds. Germination capacity of the fresh seeds is upto 90 percent. Other techniques are similar to *Cedrus deodara*.

#### 16.7.2. Planting Technique

Two or three year old seedlings are lifted with ball of earth and are transplanted during rains. They should be 20 - 35 cm in height. Usual spacing of  $1.5 \times 1.5$  meter or  $2 \times 2$  meter be kept. Weeding and cleaning is required for 2-3 years. Early, frequent and light thinning are necessary to prevent snow damage.

#### 16.8. Abies Pindrow

16.8.1. Seed Cones ripe in the month of October – November, they should be collected in October before they break up. Should be sun/ kiln dried to split open. Seed extraction by shaking and winnowing be done. Should be stored in gunny bags or tins till sowing. Good seed year occurs normally in 6 -7 years. About 25000 seeds weigh a kilogram. Germination percent normally ranges from 40 to 65. It starts after 4 – 5 months of sowing and completes in about one and a half months. Plant percent is about 1500 per kg of seeds.

#### 16.8.2. Nursery Technique (Similar to Deodar)

#### 16.8.3. Planting Technique

Similar to deodar except for the fact that Fir is a shade demander specie and hence it has to be planted in shade only. Seedlings of three plus years alone should be used for planting.

## 16.9. Picea smithiana

#### 16.9.1. Seed

Female cones ripe in October – November. They should be collected from trees, spread in the sun (or kiln) for drying and beaten to extract seeds. Seeds can be stored upto one year. They are small (50-55 thousand per kg.) Germination is normally good (more than 50 percent), usually completes in 1-2 months. Good seed year is expected once in five years.

- 16.9.2. Nursery Technique (Similar to Deodar).
- 16.9.3. **Planting Technique (**Similar to *Abies pindrow*).

#### 16.10. Quercus semecarpifolia

16.10.1. It is found at 2400 to 3600 metres altitude, occasionally descending upto 2000 metres. Seed is very large and 125 seeds weigh one kg. Seed should be collected in June to August when fresh and it has been found to 95 - 100 percent seeds are fertile.

#### 16.11. Nursery Technique

16.11.1. Dibbling be done in July-August as soon as acorns ripen. Spacing be kept 1.5 x 1.5 meters to 2 x 2 meters in fairly open places. Sowing in drills during July- August may also be done. Seedlings be kept in the nursery for 2 years.

#### 16.11.2. Planting Technique

Entire plants putout in prepared pits during the rains, when they are two years old, spacing should be 2 x 2 metres. Weeding and cleaning be done for several years.

## 16.12. Nursery Pest and Diseases of conifers and their remedial measures

#### 16.12.1. Pests

In nursery Greasy cut worm *Agrotis ipsilon* damage the young seedlings and once infected the seedlings are cut off soon after germination in March- April. Chafer beetle *Holotricha concanguina* appears in April and feed voraciously on the foliage till July.

#### 16.12.2. Control measures

1. Greasy cut worm can be controlled by the application of 0.03% of water solution of any soil insecticide e.g. *chloropyriphos 20% EC, Endosulfan 35EC (45ml)* in 20 litre

of water on the surface of nursery bed after the bed have been prepared few days in advance if sowing is beneficial.

2. Chafer beetle can be controlled by applying 200g of phorate 10G, 500 gm fenitrothion 5% dust per bed respectively.

#### 16.12.3. Diseases

In Conifer nurseries damping off, root rot and collar rot diseases are common. This disease is caused by number of fungi which are normally soil saprophytes, but may be pathogenic in unfavourable condition. The most important fungi causing these diseases in conifer seedlings belong to Pythium, Rhizoctonia, Phytophthora, Fusarium etc. All these diseases are favoured in clayed and wet soils because of anaerobic conditions in the rooting zone and high temperature.

#### 16.12.4. Control measures

- Site should be selected with having light soil texture, acid soil (4.5 to 5.5 PH) and should be located on well drained site.
- Soil or seed bed can be sterilized by steam or fumigants. Chemicals like Formalin, Methyl bromide can be used two weeks before sowing seed.
- Soil and seed can also be treated with chemicals. Fungicidal treatments may be useful for spp. which have hypogeal germination. Thiride, Cuman, Blitox, Zinc Oxide can be used as chemicals.

#### 16.13. Control of Grazing

16.13.1. The areas brought under artificial planting should be strictly closed to grazing till the time regeneration gets established and is safe enough. The young poles of advance growth should be given adequate protection against lopping and other such injuries.

#### 16.14. Broad leaved Species

#### 16.14.1. Aesculus indica

Seed: Ripens during September – November, should be collected from the trees or ground. Can be stored in dry earth till spring. About 640 seeds weigh a kilogram. Germination capacity is fairly high (70 - 90 percent).

- 16.14.2. Nursery Technique: Seed sowing be done in autumn immediately after seed collection. Patches be kept at a spacing of 2 x 2 metres in shady, cool beds. Sowing has to be done 5 cm below the soil in drills, 15 30 cm apart. Some watering is required.
- 16.14.3. **Planting Technique:** Seedlings (6, 12 and 18 months old) with naked roots are transplanted during winter in prepared pits at 2 x 2 metres spacing. Weeding and cleaning has to be done for 1-2 years. Dry exposed situations shall be avoided for planting work.

- 16.14.4. **Alnus nepalensis:** Found between 800 to 2700 metre. It is susceptible to snowbreak, frost, grazing and insect attack. It is a fast growing species and fruits ripen in February-March. They should be collected by lopping the branches. Seeds be extracted after sun drying by beating the cones. Seeds are very minute, about eight lakh seeds weigh one kg. They should be dried before storage. Germination is about 70 percent, 4 to 6 weeks after sowing.
- 16.14.5. **Nursery Technique:** Direct or broadcast sowing be done in February March in shaded beds. Beds should be covered by mulch. At low elevations i.e. below 1500 metre, transplanting in May and at higher elevation planting be done in the following rains.
- 16.14.6. **Planting Technique:** Seedlings 15 cm to 75 cm long, with or without the ball of earth around the roots be planted out in prepared pits, at the beginning of first or second rains. Autumn transplanting in September and winter transplanting be done in January. It is successful in moist and humid localities. No tending after third year is required.
- 16.14.7. Juglans regia: It is found between 1200 to 3300 metre. Fruit ripens during September-October and can be collected by beating and shaking the branches. Outer fleshy coats be removed or be rotten off and nuts be dried in the sun. It should be stored in a well ventilated room, in tins or jars or in a pit in dry ground, filled with dry earth until required for sowing. 90-100 nuts wiehg one kg. Germination capacity is 70 to 80 percent. Germination gets completed in 5 7 weeks normally.
- 16.14.8. **Nursery Technique:** Nuts may be dibbled in pits 2 x 2 metres apart, during autumn, before snowfall or in January-February. Two seeds per patch 5 cm deep be sown, should be covered with thorns. Seeds may also be sown in 25 cm deep drills, in lines 10 cm apart.
- 16.14.9. **Planting Technique:** Seedlings, without or with earth ball around the roots, be transplanted in the first winter. However, second winter transplants are better for difficult sites. Transplanting during the rainy season is not so successful. Thorough weeding and soil working be done for the first/second year. It is sensitive to weed competition.
- 16.14.10. **Robinia pseudoacacia:**It is a native of North America, and can grow at an elevation of 1500 to 2000 metres. It can grow on a variety of soils but not on very sandy, very acidic or wet soils. Drainage is an important factor affecting the growth of this specie.
- 16.14.11. Seeds: They are dried in the sun, thrashed and winnowed to obtain clean seeds. About 33 to 77 seeds weigh a gram. They can be stored in airtight containers for one year at room temperature without any appreciable loss in their viability. But, in a dry place and at low temperature (0°C to 4°C) seeds can be kept viable for 5 years in sealed containers. Seeds require pre-sowing treatment (Sulphuric acid scarification for a short-while, or immersion in hot water).

- 16.14.12. Nursery Technique: Sowing be done in beds in lines 20 cm apart. Depth of sowing should be about 1.5 cm. Sowing in irrigated nurseries be done in March-April, but in rain-fed nurseries, in June-July. Germination starts in a week and continues upto ten days. About 85 percent germination can be obtained, if the seeds are pretreated.
- 16.14.13. Planting Techniques: 8-9 month old seedlings can be planted in 30 cm<sup>3</sup> pits at a spacing of 2.5 x 2.5 metres. In poor sites, 2 x 2 metres spacing can also be used. Naked rooted plants may also be used for planting. Plantation areas be closed for grazing.

## CHAPTER-XVII Working Plan for the Forest Protection (Overlapping) Working Circle

## 17.1. General Constitution of the Working Circle

17.1.1. This is by far the most important Working Circle of the Division and deserves a special emphasis. The main pressure on the forest department in general and Shopian Forest Division in particular is the forest protection. The Division ranks the most notorious ones in the State, so far as illicit damage is concerned. The other equally important concern is massive encroachment of forest land at vulnerable areas like *Zawoora, Sedow, Hirpora, Naserpora, Keller* etc. Another disturbing feature is the absence of demarcation line and demarcation pillars, which have not gone into position as yet in the Division. Similarly other general concerns like Soil erosion, incidence of grazing, fire protection, disease/ pest outbreak are some of the Protection related matters which form an important recommendatory text of this Working Circle and are discussed under the following Sub-Heads:

#### 17.2. Illicit Damage

- 17.2.1. The Division has earned itself a name for timber smuggling chiefly for following reasons:-
  - By dint of inheriting most notorious and reckless timber smugglers called *Dogar Wallas*, who adopted the illicit timber trade as their profession, having trade links extended right upto the Anantnag Town.
  - It being the nearest Forest Division which has got a number of fast urbanized towns like Shopian, Pulwama, Kakapora, Watchi, Zainpora, Bijbehara etc. in its lap where the demand of timber is very high and have thus proved to be important consumption market of timber.
  - The Division is very easily accessible through network of roads.
  - Its sprawling area has numerous outlets (roads, paths etc.).
  - The Division slowly and gently slopes down into numerous bouldary Nallas and Streams (Rambiara and Romshi Nallas) which prove to be very helpful to smugglers.
  - The Division harbours number of undulating ravines and desolate Karewa lands which are supportive to the timber smugglers for hiding and camouflaging their activities.
  - The Division is having acute shortage of supervisory staff at lower levels viz. Class-IV level, Beat level and Block level.

## 17.3. Treatment Measures

- Ample budgetary provision for effective patrolling of vulnerable areas day in and day out.
- Ample support of mobility for conduct of nocturnal raids and laying of Nakas in such areas like Sedow, Zawoora, Kathahallan, Nasarpora, Keller and Sangerwani.
- Provision of aid for locals who could be used as informers for effective conduct of raids with desired results.
- Placement of adequate staff at vulnerable and damage prone areas to rope in and deal with the damage doers firmly and resolutely at the source.
- Strengthening of protection network by creating better infrastructure at Beat & Block levels to accommodate sufficient staff.
- Setting up of Control Rooms at vulnerable sites with adequate provision of staff and mobility at six important locations viz. Sedow, Zawoora, Shagimarg, Nasarpora and one each at Shopian and Pulwama towns.
- Reconstruction of abandoned Check Posts which are in shambles from last ten years due to lack and dearth of staff at important locations like Vehil, Memendar, Largam, Keegam etc. with provision for adequate staff.
- Stringent and timely action against the defaulting staff when found guilty of conniving the damage and involved in nefarious trade.
- No field Official should be allowed to remain at a place for more than one year, as overstay is likely to develop a vested interest.
- Timely cognizance, framing of Court Challans, lodge of FIR's, proper follow up of cases against damage doers to be ensured.
- Preparation of Dozier's for slapping PSA's on habitual timber smugglers to be ensured.
- Maintaining close liaison and good relations with Police and District Administration.
- Maintenance of Guard book for the purpose it is meant, which should be checked by Range Officer concerned and Divisional Forest Officer.
- Speedy disposal preferably in time bound manner of the damage cases by the forester concerned to be ensured.
- Adequate stocking of forest Sale Depots with timber in such vulnerable and like areas where smuggled timber is being accepted or consumed.
- 17.3.1. In view of the of the alarming situation it is expected that all the Channels of forest protection network in the Division would be strengthened in the near future by providing adequate budgetary support, man power, mobility so that protection scenario with respect to arrest of illicit damage is taken to such a level were from it

can be exterminated altogether. The smugglers deserve to be dealt with firmly and resolutely, as smuggling is one such evil that cannot brook any delay.

- 17.3.2. Following recommendations are proposed for effective tackling of timber smuggling.
  - A budgetary provision of Rs.20.00 lacs per annum for effective combat of timber smuggling.
  - Provision of additional pickup van (407 Vehicle) that could be used for effective patrolling and conduct of nocturnal raids in Romshi Range.
  - Reconstruction of four important abandoned Check Post that are presently in shambles at Keegam, Vehil, Memendar and Largam.
  - Provision of adequate supervisory staff at Class-IV, Beat and Block levels

## 17.4. Encroachment

- 17.4.1. Encroachment of Forest land is a massive problem in the Division which has been dealt in detail in Part-I (Chapter-IA). It is rather a sad commentary of affairs in the Division that the recorded forest area under the occupation of forest department is not actually recorded as forest in the State records of Revenue Department. The Revenue Department has never seriously attempted to keep the forest area records straight and updated. It has adversely effected the forests of the Shopian as people in the name of these entries have started claiming the forest land as their propriety land. The slogan of grow more food, implementation of varied developmental schemes timber and firewood extraction, the quantum of work in the field increasing to such an extent, making it impossible for the existing staff to cope up with increased activities and protection of forests. All the above factors coupled with increasing population influx, reduced per capita availability of land, ever expanding road network etc. has created a flood gate of encroachments in the Division.
- 17.4.2. In order to reverse the problem there is a need to make active efforts to evict the encroached forest land for which active support of all concerned departments is required.

## 17.5. Non Existence of Demarcation Boundaries

17.5.1. The demarcation boundaries of the Forests of Shopian are almost non-existent. This makes the forests extremely prone to encroachments, especially in such areas as are vulnerable to it. Emphasis for fresh installation of boundary line and erection of concrete boundary pillars in the Division need to be taken on priority particularly at such areas like Sedow, Zawoora, Hirpora, Keller and Nasarpora, so that further advances of the people living in the vicinity are checked. In order to bring permanency in demarcation line permanent bench marks (Geo-references) need to be surveyed and digitized. This will not help in arresting further encroachment but will also help in retrieving the encroached land back to some extent.

## 17.6. Fire Protection

17.6.1. Fortunately, forest fires are very rare and not of much consequence in the Division. However, staff has to remain vigilant in periods of extreme drought condition, which are by no means uncommon in the Division.

## 17.7. Measures to be Adopted

- Creation and maintaining of fire lines in all Kail forests.
- Creation of fire protection committees by involving local Panchayats.
- Regular and frequent patrolling in fire prone forests during dry season.
- Setting up of fire protection Control Room with adequate provision of firefighting equipment, mobility and assistance of seasonal forest protection watchers to ensure prompt response.
- Creation of awareness among local community living in and around the vicinity of forests.

## 17.8. Soil Conservation

17.8.1. The Division is having a number of Karewa Lands with a typical shape of plateau like formation with few undulations, it is obviously the slope that is the most erodible compared to the flat top. These Karewas inside the forest are in the process of losing the tree cover due to pressure of habitations around. They are the most recent of the geological formations and are therefore very loose and highly erodible. In these Karewa forests Soil Conservation problem is most acute of all.

## 17.9. Soil Conservation Measures

17.9.1. Adoption of Soil Conservation measures both vegetative and engineering like using of DRSM, Embankments, Crate bunding and construction of Retaining and Breast Walls in the most problematic areas need to be taken for effective tackling of Soil erosion. Besides, some vegetative methods of conservation like planting of site specific species including herbs, grasses that hold the soil together and prevent erosion are also to be taken to bring the soil stabilization to a desired extent.

## 17.10. Torch Wood Cutting

17.10.1. People residing near forests resort to torch wood cutting thereby inflicting serious damage to Coniferous trees. People burn the extracted torch wood and use it as a source of light during their way into the forests at night or early morning. Due to torch wood extraction the trees later on get attacked by fungus and other pests and eventually start dying. Most of the tress in the vicinity of villages residing near forests are often being seen girdled having prominent marks of torch wood extraction on their trunks. The incidence of torch wood cutting can be minimized to a considerable extent if awareness among the masses regarding the social benefits of forests is created.

## 17.11. Grazing

- 17.11.1. The forests apart from alpine and sub-alpine pastures experience huge grazing during summer season from the domestic cattle and sheep owned by Gujars and Bakerwalas. The Gujars, Bakerwalas, Banyaries are traditional graziers who over winter in the warmer plains and with the onset of summer migrate along with their livestock to the pastures of the Division. The old Mugal Road is one of the traditional route used by nomads to access the pastures of the Division. But the extent of grazing is far beyond the production capacity of the pasture lands and is adversely effecting the natural regeneration of the forests. Uncontrolled grazing degrades the ecology, hindering the natural plant succession and facilitating colonization of unwanted weed growth, hard/spiny species like *Euphorbia*, *Ephedra*, *Polygonum*, *Artemesia* etc.
- 17.11.2. A survey of graziers revealed that over 2500 households reside in the forests of the Division (including Hirpora Wildlife Sanctuary) during summer along with their flocks, horses, buffalos. The actual number of grazing livestock is about 3.50 lac annual heads, against the carrying capacity of 0.50 lac sheep or goat, thus resulting in gross over use of the pastures. In addition to the resident families, several others include thousands of livestock that transit through Pir-ki-Gali to access other alpine grass lands. In the entire Division including Wildife Sanctuary, the total pasture land available for grazing is around 250 sq.kms and going by these figures, the alpine grass lands can support no more than 50000 livestock for the four month period. The resident livestock amount to more than 90000 thousand, and added to this figure the transits, whose number too is significant, pastures of the Division are being grossly over used. The effects of this could be a change in the species composition of the grass lands. About 50% of the livestock come from the non-traditional graziers and non-traditional ways of traditional graziers. Traditional herders bring large number of livestock from other people and in return of fee. Some traditional herders bring non-traditional herders in their pastures while the others rent out their pastures to other herders for the season.

## 17.12. Method of Treatment

- 17.12.1. Excessive grazing is a serious and complicated problem, which also causes main hurdles in the successful regeneration of Fir forests, through which the cattle pass frequently. This problem has to be tackled as a socio-economic one besides being ecologically important as well. It calls for though and co-operation of all the concerned agencies like Animal and Sheep Husbandry Department, Agrostology wing of Forest, Agriculture (Agrostology), Biological Sciences Department of Kashmir University and Forage Department agencies together with representatives of graziers. Therefore, the following method of treatment is suggested:
  - 1. Rotational grazing should be introduced and research/ demonstration plots of rotational closures established and regulated grazing introduced for proper education of graziers.

- 2. All efforts should be made to eliminate the unproductive cattle by encouraging the introduction of high yielding varieties of cattle and castration of scrub type of cattle.
- 3. Grazing fee should be revised and raised in order to persuade people to discard the unproductive cattle.
- 4. Grazing policy should be revised and fresh grazing rules should be promulgated by the Govt.
- 5. The number of cattle admitted for grazing should be limited by grazing capacity.
- 6. The pasture lands at present require much intensive management on scientific lines for the overall betterment of the forests.

## 17.13. Erosion Control in Grass Lands

17.13.1. Over grazing reduces vegetative cover and also causes compaction of soil. Both these factors contribute towards accelerated soil erosion. In Shopian Forest Division, pastures are located in the uppermost reaches of the mountains. Thus the phenomenon of erosion which is initiated in these pasture lands assumes enormous proportions in the downhill areas and has devastating effects on forests, agricultural fields and highways. Therefore, it is essential that soil and water conservation measures are initiated in the high pasture lands. Contour Furrows, Contour Trenches, Control of Gullies etc. are some of the methods which are to prescribed for erosion of grass lands.

#### 17.14. Pasture Improvement

- 17.14.1. The best way to rehabilitate and develop the pastures and grass lands is to manage it on ecological principles. By mere adoption of controlled grazing, improvement of such areas is possible. Reseeding of Range is required when the grass regeneration is inadequate, native vegetation has disappeared and the area is required to be improved quickly. Some of the species suitable for pasture lands of this Division are listed as under:-
- 17.14.2. Festuca elatior, Phalaris tuberose, Bromus inermis, Cocks foot, Poa pratensis, Lolium multiflora. Seeds could be sown by broadcasting which is generally effective, economic, quick and suitable for light fluffy soils. However, some grass seeds, being very small in size and light in weight, need to be palletized before sowing. In order to avoid getting washed or blown away by wind. 2 - 3 seeds are put in a pellet (ball of convenient size) made from sand, clay, cow dung and fertilizer in the ratio of 3:1:1:1 and the pellets are dried and stored for 4 - 6months before sowing.

#### 17.15. Pests

17.15.1. Insect attack is not so prevalent in the Division. Some of the patches particularly in compartment Rb-7 and Rb-8 (*under jurisdiction of Hirpora Wildlife Sanctuary*) and Rb-3 some drying up of Fir trees has been noticed but the cause of drying has not

been ascertained as yet. The issue stands taken with Indian Forest Research Institute (IGFRI) Dehradun by Chief Wildlife Warden to ascertain the cause of drying up of these trees but till date nothing substantial has been heard about it. Once the cause is ascertained proper remedial measures would be taken in this regard.

### 17.16. Diseases

17.16.1. *Fomes pini*, the destructive fungal disease of Kail and Deodar has not been reported in any of forest patches of the Division so far. Similarly the other common diseases like *Armillarea* root rot caused by *Armillarea mellea*, too has not been noticed in the forests of the Division. Root rot and butt rot in Conifers by *Heterobasidium annosum* has been found rarely, but not so common.

#### 17.17. Parasites

17.17.1. *Armi* Arceuthobium minutissimum attack is very common in Kail species in the higher localities. The trees attacked by the parasite start drying and their branches get clustered to form *witches Broom*.

#### 17.18. Management Measures

- 17.18.1. Since the pest disease and parasite attack has never attained economic thresh hold level and remain confined to a particular pocket for a limited time, there is no need for any drastic measures to be taken. Following precautionary measures are proposed:-
  - Felling refuse should be heaped in Nallas and burnt at the earliest to avoid pest buildup.
  - The dead, dying and diseased trees should be marked as otherwise they are liable to be attacked by pests or fungal infection and to avoid spreading of the same to other trees.

## CHAPTER-XVIII Miscellaneous Regulations

### 18.1. Regulations

- 18.1.1. These regulations, which form an integral part of the recommendatory mandatory text of the Working Plan shall be discussed under the following subsidiary headings:
  - Infrastructure development regulations.
  - Forest protection and land conservation regulations.
  - Public benefit regulations.
  - Pasture Land development regulations.
  - Research and development regulations.

## 18.2. Infrastructure Development Regulation

- 18.2.1. The infrastructure of the Division suffered heavily during the turmoil period. The Divisional Office building at Shopian, Range Office and B.O's Hut at Kakapora, Rest Houses at Sedow, Keller, Methwani, Sangerwani and Check Post at Shopian, all were set ablaze and as such the Division could not consolidate the requisite infrastructure required for accommodating the staff at Block and Beat levels. However, since 2009 onwards, development of infrastructure received a boost due to launch of CAMPA and other allied Schemes. Following buildings under infrastructure development have been constructed:
  - a) Awareness Centre at Karewa Zawoora.
  - b) Malies Hut at Nagbal.
  - c) Divisional Office at Padpawan.
  - d) Range Office Kakapora.
  - e) Check Post Domail.
  - f) B.O's Hut at Tharina.
  - g) B.O's Hut at Yarwan.
  - h) B.O.'s Hut at Keller.
  - i) Range Office Shopian.
  - j) B.O's Hut at Sedow etc.
- 18.2.2. The Division needs to consolidate its infrastructure both at Block and Beat levels in a big way so as to strengthen its protection network. All the Check Posts which form an important protection network of the Division also need to be constructed afresh or renovated as the same are in a very dilapidated condition. The following

proposals for construction of new buildings are made in view of the present requirement as experienced from the field.

Range	Building	Location
	B.O's Hut at Hirpora	Comptt. Rb-2
Shopian	B.O's Hut at Methwani	Comptt. Rb-19
	Reconstruction of B.O's Hut at Chotipora	Comptt. V-1a
	Reconstruction of B.O's Hut at Sedow	Sedow Village
	Reconstruction of Guard Hut Ladigasan	Comptt. V-5
	B.O's Hut at Kathahallan	Comptt. Rb-26
	B.O's Hut Zawoora at Chachmarg	Comptt. Rb-22
SC Range	Construction of Soil Conservation Range Shopian at Padpawan	Comptt. Rb-1
Shopian	B.O's Hut at SC Unit Sedow	Comptt. V-5
2110121001	B.O's Hut at SC Unit Pakherpura	
Romshi	B.O's Hut at Sangerwani	Comptt. Ri-24
	B.O' s Hut at Zampathri	Comptt. Ri-7
	B.O' s Hut at Mujpathri	Comptt. Rb-27
	B.O' s Hut at Kahroot	Comptt. Ri-20
	B.O' s Hut at Chowan	Comptt. Ri-14
Kakapora	B.O's Hut at Kakapora	Kakapora Town

## TABLE: 18.1Proposal for construction of New buildings

#### **TABLE 18.2**

Range	Check Post	Location
	Proposed new Construction of Check Post at Dubjan	Comptt. Rb-16
	Check Post Vehil	Vehil
Shonion	Check Post Memendar	Memendar
Shopian	Check Post Largam	Largam
	Check Post Keegam	Keegam
	Check Post Bagander	Shopian
	Repair/ renovation of Check Post Drangnard	Drangnard
Romshi	Repair/ renovation of Check Post Tikna	Tikna
	Repair/ renovation of Check Post Abhama	Abhama
Kakapora	Repair/ renovation of Check Post Kakapora	Kakapora

#### 18.3. Roads and Paths

18.3.1. The Division once had a fair network of inspection paths almost all over the forest areas. But these paths have been neglected over a period of time for want of adequate funds. These inspection paths need proper attention as they are important for inspection by territorial authorities viz. Kathahallan to Kendkhel (Co.Rb-27), Nadapora - Padshnard (Co.Rb-23), Kathahallan Naka - Vatcrain (Co.Rb-26), Duchnoo - Methwani (Co.Rb-19), Methwani - Dubjan (Co.Rb-19-18-17-16), Sedow - Ladigasan

(Co.V-5), *Ladigasan Shahkoot* (Co.V-7), *Sedow -Kenwoin* via Shahkoot (Co.V-3 – V-7) etc.

18.3.2 The forest approach roads including extraction roads either constructed by State Forest Corporation or Forest Department exist in good numbers in the Division inside the forests to bring the extracted timber from KLP (*Kacha Loading Point*) to PLP (*Pucca Loading Point*) viz. Dubjan – Zuban Road (Rb-17 to Rb-18), *Chachmarg – Methwani Road* (Rb-22 to Rb-19), *Chachmarg – Bujpather Road* (Rb-22 to Rb-24), *Gathipora – Sukeebad - Wathkreen Road* (Rb-23 to Rb-25 - Rb-26), *Mujpathri – Kundkhal Road* (Rb-27) *Sonabanjar – Gadder Zampathri Keller Road* (Ri-7), *Keller Pehlipora – Bijbrari Puddar Road* (Ri-1 to Ri-7) etc. All these roads need renovation and maintenance as they are important extraction roads used for carrying of timber from forests to various Pucca Points.

## 18.4. Forest protection and land conservation regulations

18.4.1 Forest Protection and land conservations regulation (Illicit Damage, Encroachment, Boundary Consolidation, Soil Conservation etc) has been dealt in detail in Part-II (Chapter-IX).

#### 18.5. Fire Protection

18.5.1. Fires are most destructive elements. They destroy all life forms, cause serious soil erosion, kill all the microorganisms and destroy the ecosystem that had been built up over a long period of time. Repeated fires arrest progressions of vegetation by process of degradation They also denude soil paving way for massive soil erosion and siltation of dams, besides causing atmospheric pollution. Timely prevention and suppression is the key to fire control. Guidelines for prevention and control of forest fires have been issued by Government of India in letter no 9-6/99-FPD of Ministry of Environment and Forests.

#### 18.6. Fire management

#### 18.6.1. Objectives

- i. To promote conservation of biodiversity and arrest the degradation of forest lands.
- ii. To improve the sustainable production of timber and non timber forest produces in forest lands.
- iii. To maintain the balance of eco systems in forests and conserve rare and endemic species.
- iv. To maintain soil cover and prevent soil erosion.
- 18.6.2. **Time and source :** Fires in the forests start from June continuing up to the month of October every year. The interface of the forests with the human interests in enclosures and among the peripheral dwellers has increased with the increase in boundary length and these are the sources of fire. Farming, rehabilitation, Gujjar and

Bakarwal settlements and regularized encroachment areas in and around the forests are the sources of most of the forest fires.

- 18.6.3. Causes of fire : Most of the fires are accidentally caused due to carelessness. These are:
  - **i.** Fires caused by trespassers and forest users by careless slinging of burning cigarette butts and matches on to the forest floor.
  - **ii.** Fires caused by campers in forests who do not put out campfires and fires lit for cooking, before leaving.
  - **iii.** Fires started by occupants adjacent to forests when they burn slash for land clearing.
  - iv. Incendiaries fires willfully set by people for burning vegetation either for collection of NWFP or for hunting lesser animals or by the graziers for getting new flush of grass. Fires caused by the unemployed youth seeking employment as firewatchers are also common.

#### 18.7. Budget

18.7.1. The quantum of actual works related to fire management activities is wholly dependent on the availability of funds in time for these works. Thrust should be given on fire prevention management and creating local awareness about the damages caused by fire through participatory fire management programmes. An annual allocation of Rs.10.00 lakhs would be required for the fire management activities.

#### 18.8. Participatory approach for fire protection

18.8.1. JFM can be adopted in areas adjacent to habitations in degraded forests to ward off the damages due to fire as described in chapter on Participatory Forest Management.

#### 18.9. Public Benefit Regulations

- 18.9.1. **Ecotourism :** Ecotourism is a new concept in tourism. "It is a purposeful travel to natural areas to understand the cultural and natural history of environment, taking care not to alter the integrity of the ecosystem, while producing economic opportunities that make conservation of natural resources beneficial to local people". It is a nature based tourism that involves education and interpretation of natural environment and is managed to be ecologically sustainable.
- 18.9.2. Ecotourism contributes to the conservation of natural areas by providing economic incentives to local people and revenue for the Government to preserve and manage natural areas. It also provides environmental educational opportunities to raise awareness and enlist support for conservation efforts, especially at local level.
- 18.9.3. For ecotourism to be truly a form of environmentally conscious tourism and not just a pursuit of remote pristine locations, it has to be sustainable with continuous capacity to:

- a) Safeguard natural environment, the very basis of tourist attraction.
- b) Provide and maintain the quality of tourist experience and satisfaction, and benefit the local people.
- 18.10.4. Also for ecotourism to be sustainable, it has to be a small scale venture in terms of tourist numbers, physical infrastructure and facilities. At present there is no institutionalized system/channel through which public can see the forests and have a lasting experience. The quick visit to a sanctuary, as being practiced now, cannot be ecotourism. What is needed is a more focused strategy, which is supply driven and small group oriented.
- 18.10.5. Tourism in an ecologically sensitive area needs close monitoring. In short, tourism in these nature-based areas should be ecologically sustainable. There should also be provision for learning process for a visitor.

## 18.10. Strength

- The Division has many tourism destinations like Dobjan, Pir Ki Gali, Sukh Sarai, Bagi-Sangerwani etc. Apart from above given better known tourist spots, other lesser known yet as fascinating and accessible spots of tourist interest Shahkot – Kenwoin grassy plain etc. A planed and balance development of these spots of great potential for tourist traffic need to be brought into tourism map of Jammu & Kashmir.
- Massive marketing campaign undertaken by Government of J &K in the tourism field.
- Scope for a variety of ecotourism activities such as trekking, bird watching etc.

#### 18.11. Weakness

- Less infrastructure such as accommodation in tents, tree top houses etc. in interior forests.
- No focused strategy for ecotourism. It is yet to be defined, message conveyed to public and marketed as a distinct product.
- No institutional set up to give specialized attention.

#### 18.12. Management issues:

- 18.12.1. **Training of local people**: One of the main thrust areas of ecotourism is benefit to local people. In order to gain benefits from the emerging economic opportunities, local people have to be empowered. Continuous training programmes on various aspects of guiding, souvenir development & selling, providing local accommodation, development of community-based ecotourism enterprises etc. is to be undertaken. Similarly awareness programmes are to be initiated at local level on various issues related to tourism.
- 18.12.2. *Formation of VSS*: All trekking programmes are to be through the VFC. This system is already well developed and Forest department has the expertise for adaptability

to suit the local conditions. During off season the members of VFC will assist the Forest Department in preventing illicit felling, poaching etc.

#### 18.13. Timber and Firewood supply

18.13.1. Timber: There is no denying the fact that one of the prime contributory factors for illicit removal of forest tress is the dearth of constructional timber in the fast urbanizing Payeen Illaqas and prominent towns. In the public interest at large and in the interest of forests in particular, there should always be a rational step to increase the number of public Sale Depots in the Payeen Illaqa as for as possible. The Plan under revision suggests some such depots to be opened up as per the recommendations chartered out below:

<u>S.No.</u>	Name of Proposed FSD	<u>Constituency</u>
1.	Nagbal	Watchi
2.	Kharwora	-do-
3.	Dangam	-do-
4.	Chokura	-do-
5.	Rabun	-do-
6.	Cheki-Cholen	-do-
7.	Trenz	-do-
8.	Balla-Nowpora	-do-
9.	Putrigam	Rajpora
10.	Drach	-do-
11.	Kamrazipora	-do-
12.	Tojan	-do-
13.	Karewa Manloo	Shopian
14.	Cheki-Sadipora	-do-
15.	Gatipora	-do-

- 18.13.2. The controlled prices together with promise of adequate and equitable distribution according to needs will certainly be a damper and disincentive for the timber smuggling trade, provided the Sale Depots are kept always full of needed stocks.
- 18.13.3. **Firewood:** Similarly the demand of firewood is increasing with the increasing population. Not only the dead, fallen and dry trees available in the forests, but also green fit trees are being utilized for use as fuel wood. This is a grave problem and needs to be tackled on was footing in order to stop the pace of cutting of trees. For this purpose areas should be identified and planted with fast growing species to meet the requirements of firewood. Also people should be educated to use alternative sources of energy like coal, kerosene and cooking gas, which are now

available in plenty. People should also use their private lands and compounds to raise fast growing fuel wood species.

## 18.14. Social Forestry

18.14.1. In order to lessen the ever-increasing pressure of human and animal population on the conventional forests, the integrated use of non-forest land for forestry and agriculture is the ultimate answer. The term social forestry is used for various programmes of extending tree cover to the non-forest areas including agricultural lands, waste lands, roadside and canal banks.

## 18.15. Pasture Land development regulations

18.15.1. This subject has been dealt in detail in Part-II (Chapter-IX).

## 18.16. Research and development regulations

- 18.16.1. Technological innovation and development are strategically the most important dimensions of Forestry in the new millennium and can be achieved only by continuous and purposeful research. Forestry critically needs research support to improve productivity, maximize utilization and augment quality and value of forest products. Research input is essential for conservation of genetic resources and transfer of technology to the users.
- 18.16.2. The areas that have eluded research attention, and yet not late, to take up in view of their emerging significance, unending topicality and regional relevance are identified as follows.
  - Impact of fellings on the hydrology and watershed regime of Rambiara and its tributaries.
  - Technology package for revival of degraded forests in Shopian Forest Division.
  - Impact of fire on different ecosystems and monitoring the recovery process in Shopian Forest Division.
  - Natural Regeneration of Silver Fir.
  - Resource survey and population biology of different species of commercially important medicinal plants of Shopian Forest Division.
- 18.16.3. A survey on the impact of VFC's and Tahafuz Committees in the protection of forests and awareness creation among forest dwellers may be a topic of fertile sociological survey and research. Also, developing a local volume table and exploratory floristic survey of the region can be challenging research assignments. Institutional support of SKUAST can be solicited if required.

## 18.17. Fir Regeneration Experiments

18.17.1. Considering the present day technical advancement, the sharply rising demand for timber, and also keeping in mind the constraints involved viz. the Silvicultural requirements of species, the problem of grazing control etc., the optimal solution to the problem of Fir regeneration should be found out through a well Planned
succession of experimentation combined with operational research. Time is probably running out in favour of forcing the regeneration of Fir to come in through artificial means. The Research Division must take up this job on top priority basis and come up with the solution of the problem as otherwise we cannot be the silent spectators of a vast biomass of millions of cubic metres rotting away for the simple reason that we could not replace it.

#### 18.18. Sample Plots

18.18.1. It seems that Sample Plot work has gone by default. The laying out new Sample Plot in the Division has not been done since past three decades. Samples plots for Kail, Deodar and especially for in Fir crops is the essential prerequisite which the DFO Research must lay in all the territorial Divisions especially in Shopian Division for studying the growth of the species under varying conditions of locality factors. DFO Research is requested to attend to these as well as consider laying out of fresh Sample Plots in Yarwan (Deodar), Borihallan (Kail) and Hirpora (Co.Rb-4) for Fir.

#### 18.19. Climatological Data

- 18.19.1. At present there are no arrangements for recording the climatological Data like temperature and precipitation throughout the track of the Division. It is therefore necessary to install rain gauges and thermometers at Nagbal (Co.Rb-20). The readings could be taken by any literate staff member and proper record of the data maintained.
- 18.19.2. Besides the above typical regulations, the following regulations are laid down with respect to his Plan.

#### 18.20. Beats and Blocks

18.20.1. A statement showing compartment wise breakup of beats, blocks and Ranges is provided under Annexure-I. A summary of the same is tabulated as under:

S.No.	Range	Compartments
01.	Shopian	V-1 to V-7
	Shopian	Rb-1 to Rb-26b
02.		Rb-27 to Rb-33
	Romshi	Ri-1 to Ri-24c
		Y-1 to Y-9

#### 18.21. Maps

- 18.21.1. The following maps have been prepared during the present Plan and are being submitted along with the draft Plan.
  - 1. Stock Maps.
    - a) Range wise Stock maps on the Scale of 1:50000
    - b) Individual compartment sub-compartment maps on the Scale of 1:15000
  - 2. Management Map.

Range wise management map on the Scale of 1:50000 depicting area allotted to different Working Circles by colour Scheme.

# 18.22. Compartment Descriptions

18.22.1. The compartment descriptions have been prepared for individual compartments, Range wise and filed. Each file being submitted along with draft Plan.

#### 18.23. Draft Plan

18.23.1. Copies of the draft Working Plan for Shopian Forest Division for of period of March 2014 to February 2023 are being submitted in duplicate.

# CHAPTER-XIX Staff and Labour Supply

#### 19.1. Establishment

19.1.1. The subjoined statement envisages the establishment working for the Division for the year 2013-14.

S.No	Designation	Total No: working at present	Pay scale
1	D.C.F	0	15600-39100+6600
2	A.C.F	01	9300-34800+4800
3	Range Officers – I	02	9300-34800+4280
4	Sr. Forests as I/C RO	05	9300-34800+4200
5	Foresters	14	5200-20200+2800
6	Dy. Foresters	14	5200-20200+2300
7	Forest Guards	34	5200-20200+1900
8	Watchers	12	4440-7440+1300
9	Malies	13	4440-7440+1300
10	Chowkidars	37	4440-7440+1300
11	Boom Chowkidars	01	4440-7440+1300
14	Cattle Pond Keeper	01	4440-7440+1300
15	Orderlies	07	4440-7440+1300
16	Helper	59	4440-7440+1300
17	Accountant	01	9300-34800+4200
18	Sr. Assistant	0	5200-20200+2400
19	Jr. Assistant	05	5200-20200+1900
20	Drivers	1	4440-7440+1300
21	Cleaners	0	4440-7440+1300
22	Consolidate Workers	10	
23	Daily Rated Workers	20	

19.1.2. The present strength of the establishment is not adequate enough to cope with the ever increasing work load especially to launch the regeneration programme. With the implementation of large and varied developmental Schemes, timber and

firewood extraction, timber and firewood distribution, the quantum of work in the Division has increased tremendously and it has become impossible for existing staff to cope up with the increased activities and protection of forests. A significant number of field functionaries at Class-IV level, Beat and Block levels need to be posted to this sensitive enough Division. Furthermore, a significant number of field functionaries are untrained which makes the matter even more worse. A regular training schedule should be followed in order to train all the un-trained staff.

#### 19.2. Labour Supply

**19.2.1.** The labour supply in the Division is by and large satisfactory. The labourers employed are mostly local. They have acquired considerable skill in various logging operations due to their long standing association with forest working. The main occupation of the labourers is Horticulture and Agriculture and labour scarcity is caused during sowing and harvesting season. Relatively higher wages and easier nature of work is attracting labourers towards other Sectors, which may affect the future adequate labour supply required for various forestry operations which therefore, have to be mechanized to least reliance on man power.

# CHAPTER-XX Control

#### 20.1. Control Forms

- 20.1.1 As per the standard procedure, the following Control Forms, as prescribed should be maintained.
- 20.1.2. **Control Form A:** This form shall be maintained for recording the major markings/ fellings which are being carried out in Fir Selection Working Circle. As usual a deviation statement indicating specie wise plus minus account of the actual removal, vis-à-vis, the prescribed yield will be compiled at the end of the year and the same brought forward in the subsequent year and summed up (plus or minus) with the prescribed yield for the last year.
- 20.1.3. **Control Form B:** This form shall be maintained on the standard format for recording the yield realized from Fir Selection Working Circle. It shall be maintained in the same way as control form-A, except that the excess removals, if any during a year are to be adjusted in the subsequent year but the deficit shall lapse to the forest.
- 20.1.4. **Control Form C:** It will be maintained to record and monitor the progress of regeneration works in the area taken up for artificial regeneration. Such areas are to be written off from this form only after they carry adequate and established regeneration.
- 20.1.5. **Control Form D:** This form shall indicate the proposals of the territorial DFO for markings of coupes during the next three years following the year in which the proposals are made. It is required to be submitted well in time to Conservator of Forests Working Plan and Research Circle, through the concerned territorial Conservator of Forests, who will convey his approval after due scrutiny of the proposals in consultation with the Chief Conservator of Forests. The arrears in respect of Control Forms need to be completed at once and their future maintenance ensured, so that they become purposeful.

#### 20.2. Compartment Histories

20.2.2. These are, in fact, the most important records of happenings in a forest. They must be objectively maintained and updated both at Range as well as Divisional level. Entries regarding marking, extraction, plantation and development works, fire, encroachment, land transfer and any other significant event that happens in a compartment must be made in the compartment history file. A summary of the year's entries should be submitted to Conservator of Forest Working Plan Circle every year.

#### 20.3. Divisional Journal

20.3.2. This document, although very important, has been neglected in the Division. It is of immense use to the DFO and must be maintained and updated regularly. It should

contain detailed information on subjects like regeneration, plantation, Soil Conservation works, seed years, disease/ insect attacks, statistics of out-turn of timber and firewood, sample plots, roads, buildings, meteorological data and any other relevant information as the DFO may deem fit. On the analogy of the Divisional journal, record must be maintained at Range and Block level too.

#### 20.4. Guard Books

20.4.2. By and large, the guard books are not being maintained properly. In many cases, the guard books have been found lacking even the elementary data regarding description of boundaries of the beat, number and name of the compartments, beat maps and number of boundary pillars. The guard books must be checked frequently by Range Officers atleast once a month and by DFO once in six months.

# CHAPTER-XXI Financial Forecast and Cost of the Plan

#### 21.1. Future Yield and Revenue

21.1.1. While working the financial forecast we have taken into account the revenue accruing mostly from the Sale of timber through consumer sale from Forest Timber Sale Depots. The contribution on account of NTFP is negligible and has not been considered. Since the rates of timber are not constant, it will not be possible to give a financial forecast for a longer period.

#### 21.2. Revenue from Timber

21.2.1. The prescribed annual yield of 8800 m<sup>3</sup> is going to be realized mainly from available fallen material strictly as per Q&Q norms in the 1<sup>st</sup> five years of the Plan. The breakup of the timber yield from Fir Selection Working Circle is as under:-

# TABLE : 21.1Timber yield specie wise: (in m³)

Deodar	Kail	Fir	Total
0	100	8700	8800

21.2.2. On the basis of the average rate chargeable from the consumers for the above specie, the total annual revenue from the timber targeted at FSD's of this Division is worked out as under:-

#### **TABLE : 21.2**

# Annual revenue expected from targeted Timber supplies:

Specie	Zone	Volume (m <sup>3</sup> )	Rate (m <sup>3</sup> )	Revenue (Rs)
	A	1188	2614.85	3106441.80
Fir	В	251	4880.03	1224887.53
	С	2332	7243.81	16892564.92
Total		3771		21223894.25
		•		•

#### **TABLE : 21.3**

#### Annual royalty expected from balance targeted Timber (SFC)

	~ ~ 1	8	
Specie	Volume (m³)	Rate (m <sup>3</sup> )	Revenue (Rs)
Kail	100	1921	192100
Fir	4929	1388	6841452
Total	5029		7033552
Total Annua	l revenue expected (L	28247446.25	

#### **TABLE 21.4**

Annual revenue expected from targeted firewood supplies to Masques and other Religious Institutions.

itengious institutions.							
Firewood	Supplies to	Cost	Sale	Net	Total		
extraction	religious	per Qtl	Rate	Profit	Revenue		
(Qtl)	institutions	(in Rs)	(Rs/Qtl)	(Rs/Qtl)	(Rs/Qtl)		
15000	6000	155	190	35	1140000		

21.2.3. Total Revenue from Timber and Firewood per annum (*Rs.282.47 + 11.40 lacs*) = *Rs.293.87 lacs* 

#### 21.3. Future Expenditure

21.3.1. The working circle wise area to be taken up annually for reforestation and rehabilitation is as under:-

Annual treatable area.						
Working Cinela	Area	Financial implication				
working Circle	(hacs)	(in lacs)				
Rehabilitation Working Circle	200.00	290.00				
Fir Selection Working Circle	159.00	77.00				
E.C.WC (Alpine Pasture Management)	100.00	50.00				
Total	459.00	417.00				

TABLE: 21.5.

The detailed estimated cost for various operations to be undertaken is given in Annexure-XVII

21.3.2. The total annual expenditure involved as calculated above comes out to be Rs.417.00 lacs per annum on account of rehabilitation of forest areas by carrying out massive aforestation.

#### 21.4. Normal expenditure

21.4.1. In addition, the Projection for the average amount required per annum over the next ten years to cover the normal expenditure of the Division is as under:

Average amount required per annum.				
Item	Amount (Rs)			
Salary	6,62,27,830.00			
T.E.	1,00,000.00			
O.E.	1,00,000.00			
Motor Vehicles	1,00,000.00			
Firewood	30,00,000.00			
Timber	1,20,00,000.00			
Miscellaneous	5,00,000.00			
Total	8,20,27,830.00			

**TABLE: 21.6.** 

- 21.4.2. The total expenditure under non-plan, therefore is projected at Rs.08.20 crores, which is approximately 279.129 percent of the projected revenue.
- 21.4.3. The above said estimates are only projections. It is affected by so many factors like escalation in the cost of extraction and timber Sale rates. Nevertheless these figures bring out very clearly that if proper investment is made in the forestry sector, the State shall be in a position to regenerate the dwindling forest reserves and the tangible and intangible benefits that will accrue, will far exceed the initial investment. The expenditure on account of Salary is bound to raise on the higher side due to D.A. increment to be added every year, promotions to the next scale and expected 7<sup>th</sup> Pay Commission report and its impact etc.

#### 21.5. Cost of The Plan

21.5.1. The expenditure incurred on the revision of the Working Plan for Shopian Forest Division is as under:

Unit of Appropriation	Year	Expenditure made (in Rs)
Plan		
	2010-11	8,15,000.00
13 <sup>th</sup> Finance Commission	2011-12	3,46,020.00
Award	2012-13	1,50,000.00
	2013-14	6,00,000.00
To	19,11,020.00	

 TABLE 21.7

 Expenditure incurred on the revision of Working Plan

21.5.2. The expenditure shown above is inclusive of the amount spent on the purchase of various equipments required for carrying out the Working Plan exercise. In terms of field work, the expenditure incurred under the Plan Head for the revision of the Working Plan is Rs.57.18 per hectare.

# CHAPTER-XXII Summary of Prescriptions

# 22.1. The following is the summary of the important prescriptions of the Plan:

	De	tails of Prescript	ions			Section	Pa	ge
22.2.	Сс	onstitution of the	Worki	ing Cir	cles	9.5		80
	•	Fir Selection Working Circle						
	•	Rehabilitation Wo						
	•	Ecological Conserv	vation \	Norking	g Circle			
	•	Wildlife Managem	ent (O	verlapp	ing) Working Circle			
	•	Joint Forest Mana	gemen	t (Overl	apping) Working Circl	e		
	•	NTFP (Overlapping	g) Worl	king Ciro	cle			
	•	Plantation (Overla	pping)	Workin	g Circle			
	Forest Protection (Overlapping) Working Circle							
22.3.	Pe	riod of the Plan:	Ten y	ears, 2	014 to 2024	9.7		81
22.4.	Fir	Selection Worki	ction Working Circle					85
	•	Total area of the V	ea of the Working Circle=7828.80 hac					86-87
	•	Total Commercial a	mercial area of the Working Circle=6617.77 hacs					86-87
	•	Silvicultural Syster	al System Adopted			10.4		87
	•	Exploitable Size Deodar and Ka	il	=	70 cms dbh(ob)	10.5		87
		Fir		=	80 cms dbh(ob)			
	•	Rotation Deodar and Ka	il	=	150 years	10.6		87
		Fir		=	225 years			
	•	Felling Cycle		=	25 years	10.7.		87
	•	Felling Series		=	one			
22.5.	De	tails of Prescript	ions:					
	•	Annual Yield for th	ie Wor	king Cir	cle	10.11.2		95
		Kail	=	100	m³			
		Fir	=	8700	<u>m³</u>			

	<u>Total = 8800 m³</u>		
	Intensity of cut per hectare of the commercial area of Working circle =1.33 m <sup>3</sup> per annum	the	
	• Size of Annual Coupe = 264.71 hacs (Say 265.00 hacs)	10.12	95
	Allowable cut per hectare of the Annual Coupe =		
	33.20 m <sup>3</sup> per annum	10.13	95-96
22.6.	Rehabilitation Working Circle	11	100
	Total area of the Working Circle=16345.90 hac	11.3	101-102
	• Total Commercial area of the Working Circle=7911.09 hacs	11.3	101-102
	Objectives of Management	11.4.	102
	Analysis and Evaluation of growing stock	11.5.	102-104
	Methods of treatment	11.8.	105-107
22.7.	Ecological Conservation Working Circle	12	108
	Total area of the Working Circle=9167.40 hac	12.3.	109
	• Total Commercial area of the Working Circle=2905.12 hacs	12.3.	109
	Objectives of Management	12.4.	109
	Analysis and Evaluation of growing stock	12.5.	110-112
	Methods of treatment	12.6.	113
22.8.	Wildlife (Overlapping) Working Circle	13	114
	Objectives of Management	13.3	115
	Legal Position	13.4.	115
	Improvement of Habitat	13.7.	115-116
	Management of Man-Animal Conflict	13.9.	116
22.9.	Joint Forest Management (Overlapping) WC	14	118
	Government Policy on JFM	14.2.	118-119
	Implementation of JFM in Shopian Forest Division	14.3.	119
	Objectives of Management	14.6.	12
22.10	NTFP (Overlapping) Working Circle	15	122
	Objectives of Management	15.2.	122
	Methods of Treatment	15.3.	122-123
	<ul> <li>Prescription for laying out of MPCA's</li> </ul>	15.5.	123

22.11.Plantation (Overlapping) Working Circle	16	126
Objectives of Management	16.2.	126
Distribution of Area	16.3.	126-127
Choice of Species	16.4.	127
<ul> <li>Nursery and Plantation Techniques</li> </ul>	16.5	127
22.12. Forest Protection (Overlapping) Working Circle	17	133
Illicit Damage	17.2.	133
Treatment Measures	17.3.	135
Measures to be adopted	17.7.	136
Method of Treatment	17.12.	137-138
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• Future Yield and Revenue

• Projected Annual Revenue

Total	=	Rs. <b>2,93,87,466.25</b>
Firewood	=	Rs. 11,40,000,00
Timber	=	Rs.2,82,47,466.25

# ANNEXURES

# ANNEXURE – I

# Statement showing Administrative setup of Shopian Division – Range, Block, Beat and compartment wise

C No	Name of the	Head Quarter	<i>S</i> .	Name of	<i>S</i> .	Name of the	Comptt. No.
5.110	Range Office	of the Range	No	Block	No.	Beat	From - To
					1	Saidpora	V/1a-V/1b
			1	Chotipora	2	Chotipora	V/2a - V/2b
					3	Shamsipora	V/2c
				Sedow	4	Sedow-A	V/3 - V/4c
			2		5	Sedow-B	V-/5a – V/5b
			3	Ladigasan	6	Ladigasan	V/6 – V/7
		4	Hirpora	7	Borihallan	Rb/1a – Rb/2b	
	1 Shopian				8	Hirpora	Rb/3 - Rb/6
1		Shopian	5	Methwani	9	Dubjan	Rb/16a – Rb/18
					10	Methwani	Rb/19a – Rb/19c
			6	Zawoora-A	11	Nagbal	Rb/20
					12	Zawoora	Rb/21 – Rb/22a
			7	Zawoora-B	13	K. Manloo	Rb/22b – Rb/24a
			8	Kathahallan	14	Kathahallan- A	Rb/24b – Rb/25
					15	Kathahallan- B	Rb/26a – Rb/26b
2	Romshi	Pulwama	1	Mughpathri	1	Mughpathri	Rb/27a – Rb/28
			2	Tharina	2	Tharina	Rb/29 –

							Rb/30
					3	Nagwan	Rb/31 – Rb/33
			3	Zampathri	4	Pehlipora	Ri/1 – Ri/4
					5	Zampathri	Ri/5a – Ri/7
			4	Chowan	6	Tragpathri	Ri/8a – Ri/8b
					7	Chowan	Ri/9a – Ri/14
			5	Namblan	8	Namblan	Ri/15a – Ri/18
					9	Kahrut	Ri/19 – Ri/22
			6	Sangerwani	10	Sangewani	Ri/23a – Ri/24c
			7	Keller	11	Keller	Y/1 & Y/6
				12	Batmurran	Y/7 – Y/9	
		8	Yarwan	13	Yarwan	Y/2 - Y/3	
					14	Shadimarg	Y/4 – Y/5

# **ANNEXURE-II**

	<b>Divisional Administrative</b> A	rea Statement –	Range, Bloc	ck, Beat and	compartment wise
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		Shopian Range		
Block	Beat	Comptt. No.	Total Area (hac)	Latitude/ Longitude
		V-6	262.90	$\begin{array}{c} 100.31 \\ \text{N } 33^{0} 38'.358'' \\ \text{F } 74^{0} 45' 774'' \end{array}$
Ladigassan	Ladigassan	V-7	4182.10	$\begin{array}{c} 12.771 \\ \text{N } 33^{0} 38'.378'' \\ \text{E } 74^{0} 43'.700'' \end{array}$
		V-3	188.10	$\begin{array}{c} 12.74^{\circ} 45.709^{\circ} \\ 133^{\circ} 39'.486'' \\ 15.74^{\circ} 45'.022'' \end{array}$
		V-4a	173.90	$\frac{E}{N} \frac{74}{33^{0}} \frac{43.032}{38'.840''}$
	Sedew-A	V-4b	133.50	E /4 <sup>°</sup> 44'.468" N 33 <sup>°</sup> 39'.405"
Sedew		V-4c	113 30	E 74° 46'.290" N 33° 39'.356"
		V 50	315.60	E 74 <sup>°</sup> 45'.678" N 33 <sup>°</sup> 38'.918"
	Sedew-B	V-Ja	313.00	E 74 <sup>°</sup> 45'.903" N 33 <sup>°</sup> 39'.447"
		V-50	80.80	E 74 <sup>°</sup> 47'.166" N 33 <sup>°</sup> 40'.918"
	Saidpora	V-la	307.50	E 74 <sup>°</sup> 47'.548" N 33 <sup>°</sup> 41' 027"
		V-1b	76.80	$\frac{\text{E } 74^{\circ} 48'.548''}{\text{N } 33^{\circ} 40' 101''}$
Chotipora	Chotipora	V-2a	101.10	$E 74^{\circ} 45'.762''$
	_	V-2b	157.80	$E 74^{\circ} 46'.129''$
	Shamshipora	V-2c	84.90	N 33° 39'.918" E 74 <sup>0</sup> 45'.778"
		Rb-1a	149.70	N 33 <sup>°</sup> 40'.394" E 74 <sup>°</sup> 45'.581"
	Boriballan	Rb-1b	153.70	N 33 <sup>°</sup> 40'.780" E 74 <sup>°</sup> 46'.129"
	Borinalian	Rb-2a	101.10	N 33 <sup>°</sup> 40'.308" E 74 <sup>°</sup> 44'.442"
		Rb-2b	165.80	N 33 <sup>0</sup> 39'.568" E 74 <sup>0</sup> 44'.274"
Hirpora		Rb-3	329.80	N 33 <sup>°</sup> 39'.648" E 74 <sup>°</sup> 43'.357"
		Rb-4	647.50	N 33 <sup>°</sup> 39'.189" E 74 <sup>°</sup> 42'.967"
	Hirpora	Rb-5a	258.80	N 33 <sup>°</sup> 39'.542" F 74 <sup>°</sup> 42' 281"
		Rb-5b	58.70	N $33^{\circ} 39'.918''$ E $74^{\circ} 43'.006''$
		Rb-6	216.30	N 33 <sup>°</sup> 39'.648" E 74 <sup>°</sup> 41'.967"

Block	Beat	Comptt. No.	Total Area (hac)	Latitude/ Longitude
		Rb-16a	150.50	N 33 <sup>°</sup> 40'.540" E 74 <sup>°</sup> 39'.741"
		Rb-16b	1224.50	N 33 <sup>0</sup> 40'.945" E 74 <sup>0</sup> 39'.419"
	Dubjan	Rb-17a	206.10	N 33 <sup>0</sup> 40'.918" E 74 <sup>0</sup> 40'.483"
Mathematic		Rb-17b	289.40	N 33 <sup>°</sup> 41'.405" E 74 <sup>°</sup> 40'.612"
Methwahi		Rb-18	319.60	N 33 <sup>°</sup> 41'.216" E 74 <sup>°</sup> 41'.709"
		Rb-19a	279.10	N 33 <sup>0</sup> 40'.918" E 74 <sup>0</sup> 43'.064"
	Methwani	Rb-19b	213.80	N 33 <sup>°</sup> 41'.459" E 74 <sup>°</sup> 43'.774"
		Rb-19c	28.30	N 33 <sup>0</sup> 41'.373" E 74 <sup>0</sup> 44'.495"
Zawoora-A	Nagbal	Rb-20	271.10	N 33 <sup>°</sup> 42'.000" E 74 <sup>°</sup> 47'.645"
	Zawaara	Rb-21	453.30	N 33 <sup>°</sup> 43'.378" E 74 <sup>°</sup> 48'.096"
	Zawoora	Rb-22a	279.20	N 33 <sup>0</sup> 42'.783" E 74 <sup>0</sup> 47'.354"
Zawoora-B		Rb-22b	131.90	N 33 <sup>0</sup> 43'.378" E 74 <sup>0</sup> 47'.000"
	K. Manloo	Rb-23	445.30	N 33 <sup>°</sup> 44'.081" E 74 <sup>°</sup> 47'.935"
		Rb-24a	258.90	N 33 <sup>°</sup> 43'.216" E 74 <sup>°</sup> 46'.548"
	Kathahallan-A	Rb-24b	38.40	N 33 <sup>°</sup> 41'.676" E 74 <sup>°</sup> 45'.108"
Kathahallan		Rb-25	129.40	N 33 <sup>°</sup> 42'.411" E 74 <sup>°</sup> 45'.709"
	Kathahallan-B	Rb-26a	605.10	N 33 <sup>°</sup> 42'.297" E 74 <sup>°</sup> 44'.806"
	Kathananan D	Rb-26b	182.00	N 33 <sup>°</sup> 43'.139" E 74 <sup>°</sup> 45'.879"
		Romshi Range		-
		Rb-27a	291.30	N 33 <sup>°</sup> 42'.405" E 74 <sup>°</sup> 42'.645"
Mughpathri	Mughpathri	Rb-27b	216.50	N 33 <sup>°</sup> 42'.586" E 74 <sup>°</sup> 43'.717"
		Rb-28	623.30	N 33 <sup>°</sup> 43'.007" E 74 <sup>°</sup> 43'.079"
		Rb-29	653.70	N 33 <sup>0</sup> 44'.162" E 74 <sup>0</sup> 44'.677"
Tharina	Thairna	Rb-30	416.90	N 33 <sup>0</sup> 45'.061" E 74 <sup>0</sup> 44'.902"

		Rb-31	585.40	N 33 <sup>0</sup> 45'.206" E 74 <sup>0</sup> 44' 288"
Tharina	Nagwan	Rb-32	307.50	N 33 <sup>°</sup> 44'.135" E 74 <sup>°</sup> 43'.096"
		Rb-33	178.00	N 33 <sup>0</sup> 46'.162" E 74 <sup>0</sup> 46'.096"
		Ri-1	259.00	N 33 <sup>0</sup> 45'.176" E 74 <sup>0</sup> 43'.421"
		Ri-2	307.60	N 33 <sup>°</sup> 43'.412" E 74 <sup>°</sup> 41'.056"
	Pehlipora	Ri-3a	101.10	N 33 <sup>°</sup> 42'.685" E 74 <sup>°</sup> 41'.010"
		Ri-3b	274.80	N 33 <sup>0</sup> 41'.959" E 74 <sup>0</sup> 40'.218"
Zampathri		Ri-4	247.00	N 33 <sup>°</sup> 41'.686" E 74 <sup>°</sup> 39'.132"
		Ri-5a	188.50	N 33 <sup>°</sup> 42'.807" E 74 <sup>°</sup> 40'.233"
	Zampathri	Ri-5b	109.30	N 33 <sup>0</sup> 42'.287" E 74 <sup>0</sup> 38'.848"
	Zampaum	Ri-6	348.10	N 33 <sup>0</sup> 43'.675" E 74 <sup>0</sup> 41'.030"
		Ri-7	200.30	N 33 <sup>0</sup> 45'.891" E 74 <sup>0</sup> 43'.967"
	Tragnathri	Ri-8a	354.20	N 33 <sup>0</sup> 46'.378" E 74 <sup>0</sup> 43'.322"
		Ri-8b	80.90	N 33 <sup>°</sup> 46'.705" E 74 <sup>°</sup> 43'.483"
Chawan		Ri-9a	198.20	$\begin{array}{c c} N & 33^{0} & 47' \\ \hline E & 74^{0} & 43' \\ \hline 645'' \end{array}$
Chawan	Chawan	Ri-9b	402.80	N 33 <sup>°</sup> 46'.567" E 74 <sup>°</sup> 42'.516"
		Ri-10	307.60	N 33 <sup>°</sup> 44'.675" E 74 <sup>°</sup> 41'.451"
		Ri-11	252.90	N 33 <sup>°</sup> 43'.135" E 74 <sup>°</sup> 39'.838"
		Ri-12a	165.80	N 33 <sup>°</sup> 42'.972" E 74 <sup>°</sup> 39'.161"
Chawan	Chawan	Ri-12b	439.20	N 33 <sup>°</sup> 42'.351" E 74 <sup>°</sup> 38'.225"
	Chawan	Ri-13	1062.70	N 33 <sup>°</sup> 42'.972" E 74 <sup>°</sup> 38'.580"
		Ri-14	998.10	N 33 <sup>°</sup> 43'.297" E 74 <sup>°</sup> 38'.483"
Namblan	Namhlan	Ri-15a	587.00	N 33 <sup>°</sup> 44'.002" E 74 <sup>°</sup> 37'.395"
i vanioran	Tumbian	Ri-15b	194.30	N 33 <sup>°</sup> 43'.864" E 74 <sup>°</sup> 38'.225"
Namblan	Namblan	Ri-16	315.60	N 33 <sup>°</sup> 43'.882" E 74 <sup>°</sup> 39'.165"

	NT 11	Ri-17	408.90	N 33 <sup>0</sup> 44'.486" E 74 <sup>0</sup> 40'.580"
	Namblan	Ri-18	570.70	N 33 <sup>0</sup> 45'.837" E 74 <sup>0</sup> 41'.225"
		Ri-19	364.40	N 33 <sup>°</sup> 46'.162" E 74 <sup>°</sup> 41'.096"
Namblan		Ri-20a	283.30	$\begin{array}{c c} & 1 & 111090 \\ \hline N & 33^{0} & 46'.783'' \\ \hline F & 74^{0} & 40'.709'' \end{array}$
	Kehroot	Ri-20b	344.00	$\begin{array}{c c} E 74 40.709 \\ \hline N 33^{0} 45'.621'' \\ E 74^{0} 38'.003'' \end{array}$
		Ri-21	1805.60	$\begin{array}{c c} E 74 & 38.903 \\ \hline N & 33^{0} 44'.336'' \\ E 74^{0} & 26'.250'' \end{array}$
		Ri-22	3004.00	$\begin{array}{c c} E 74 & 50.239 \\ \hline N & 33^{0} 45'.139'' \\ \hline E & 74^{0} 25'.407'' \\ \end{array}$
		Ri-23a	437.00	N 33 <sup>0</sup> 46'.500"
Sangerwani		Ri-23b	26.30	E 74° 38'.000" N 33° 48'.000"
	Sangarwani	Ri-24a	323.80	E 74° 42'.000" N 33° 47'.500"
	Sungarwann	Ri-24h	40.30	E 74° 41'.000" N 33° 47'.500"
		D: 240	100.20	E 74 <sup>°</sup> 43'.000" N 33 <sup>°</sup> 48'.500"
		K1-24C	109.20	E 74 <sup>°</sup> 45'.000" N 33 <sup>°</sup> 46'.540"
	Keller	Y-1	109.20	E 74 <sup>0</sup> 47'.225" N 33 <sup>0</sup> 47' 405"
		Y-6	145.50	$E 74^{\circ} 47'.258''$
Keller		Y-7	97.10	$\begin{array}{c} \text{N } 33^{\circ} 47.108^{\circ} \\ \text{E } 74^{\circ} 47'.548'' \end{array}$
	Batmurren	Y-8	147.70	N 33° 47'.540" E 74° 48'.483"
		Y-9	165.90	N 33 <sup>°</sup> 46'.750" E 74 <sup>°</sup> 47'.930"
	V	Y-2	113.30	N 33 <sup>°</sup> 47'.945" E 74 <sup>°</sup> 47'.193"
	Y ar	Y-3	129.50	N 33 <sup>0</sup> 48'.027" E 74 <sup>0</sup> 47'.935"
Yar		Y-4	141.60	$\begin{array}{c c} & 1 & 1 & 1 & 2 & 2 \\ \hline N & 33^{0} & 48' & .000'' \\ \hline F & 74^{0} & 48' & 354'' \end{array}$
	Shadimarg	Y-5	141.60	N 33 <sup>°</sup> 47'.675" E 74 <sup>°</sup> 47'.838"
1		1	1	

# ANNEXURE-III

## Area Statement Of Fir Selection Working Circle

			Comn	Blank &				
Range	Compt. No	Deodar	Kail	Fir	<i>B.L</i> .	Total	Un- commercial (Hac's)	Grand Total
	V-4a	0.00	0.00	141.70	0.00	141.70	32.20	173.90
	V-4b	0.00	0.00	133.50	0.00	133.50	0.00	133.50
Chanian	Rb-4	0.00	10.68	304.71	38.10	353.49	294.01	647.50
Snoplan	Rb-5a	0.00	39.10	187.50	0.00	226.60	32.20	258.80
	Rb-6	0.00	24.45	166.18	0.00	190.63	25.67	216.30
	Rb-17b	0.00	10.88	242.00	0.00	252.88	36.52	289.40
SUB-TC	DTAL	0.00	85.11	1175.59	38.10	1298.80	420.60	1719.40
	Rb-27a	0.00	0.00	245.00	0.00	245.00	46.30	291.30
	Rb-27b	0.00	0.00	147.70	0.00	147.70	68.80	216.50
	Rb-31	0.00	21.00	479.45	0.00	500.45	84.95	585.40
	Rb-32	0.00	10.00	279.30	0.00	289.30	18.20	307.50
	Ri-1	0.00	18.00	228.63	0.00	246.63	12.37	259.00
	Ri-2	0.00	0.00	291.13	0.00	291.13	16.47	307.60
	Ri-3a	0.00	0.00	87.87	4.10	91.97	9.13	101.10
	Ri-5b	0.00	0.00	90.00	6.89	96.89	12.41	109.30
	Ri-6	0.00	0.00	326.00	0.00	326.00	22.10	348.10
	Ri-12a	0.00	0.00	148.00	6.00	154.00	11.80	165.80
Domahi	Ri-15b	0.00	0.00	145.70	0.00	145.70	48.60	194.30
Komsm	Ri-16	0.00	0.00	246.79	0.00	246.79	68.81	315.60
	Ri-17	0.00	0.00	368.35	12.25	380.60	28.30	408.90
	Ri-18	0.00	0.00	536.70	0.00	536.70	34.00	570.70
	Ri-19	0.00	0.00	332.94	0.00	332.94	31.46	364.40
	Ri-20a	0.00	0.00	263.00	0.00	263.00	20.30	283.30
	Ri-20b	0.00	0.00	271.00	0.00	271.00	73.00	344.00
	Ri-23a	0.00	13.20	329.70	0.00	342.90	94.10	437.00
	Ri-23b	0.00	5.20	16.20	0.00	21.40	4.90	26.30
	Ri-24a	6.20	29.10	248.12	0.00	283.42	40.38	323.80
	Ri-24b	13.20	9.30	0.00	10.15	32.65	7.65	40.30
	Ri-24c	4.40	65.10	0.00	3.30	72.80	36.40	109.20
SUB-TC	DTAL	23.80	170.90	5081.58	42.69	5318.97	790.43	6109.40
ΤΟΤΑ	4 <i>L</i>	23.80	256.01	6257.17	80.79	6617.77	1211.03	7828.80

## **ANNEXURE-IV**

#### Commercial Area (Hac's) Blank & Grand Comptt. Un-Range No commercial Total Deodar Kail Fir **B.L**. Total (Hac's)

# Area Statement Of Rehabilitation Working Circle

	V-1a	0.00	195.30	63.00	0.00	258.30	49.20	307.50
	V-1b	0.00	0.00	0.00	0.00	0.00	76.80	76.80
	V-2a	0.00	0.00	97.94	0.00	97.94	3.16	101.10
	V-2b	0.00	119.22	6.00	0.00	125.22	32.58	157.80
	V-2c	0.00	2.00	0.00	0.00	2.00	82.90	84.90
	V-3	0.00	14.03	148.06	0.00	162.09	26.01	188.10
	V-4c	0.00	85.01	15.29	0.00	100.30	13.00	113.30
	V-5a	0.00	206.30	50.00	0.00	256.30	59.30	315.60
	V-5b	0.00	43.89	0.00	0.00	43.89	36.91	80.80
	V-6	0.00	171.41	20.90	0.00	192.31	70.59	262.90
	V-7	0.00	103.89	34.62	0.00	138.51	4043.59	4182.10
	Rb-1a	0.00	133.00	0.00	0.00	133.00	16.70	149.70
	Rb-1b	0.00	21.85	118.45	0.00	140.30	13.40	153.70
	Rb-2a	0.00	77.29	0.00	0.00	77.29	23.81	101.10
Shopian	Rb-2b	0.00	33.32	109.11	0.00	142.43	23.37	165.80
	Rb-3	0.00	15.54	291.16	0.00	306.70	23.10	329.80
	Rb-5b	0.00	30.74	27.96	0.00	58.70	0.00	58.70
	Rb-16a	0.00	108.20	10.00	0.00	118.20	32.30	150.50
	Rb-16b	0.00	0.00	297.50	0.00	297.50	927.00	1224.50
	Rb-17a	0.00	61.12	101.90	0.00	163.02	43.08	206.10
	Rb-18	0.00	140.00	97.10	0.00	237.10	82.50	319.60
	Rb-19a	0.00	54.00	34.10	0.00	88.10	191.00	279.10
	Rb-19b	7.94	19.83	0.00	0.00	27.77	186.03	213.80
	Rb-19c	0.00	0.37	0.00	0.00	0.37	27.93	28.30
	Rb-20	0.00	30.00	0.00	0.00	30.00	241.10	271.10
	Rb-21	0.00	67.09	0.00	0.00	67.09	386.21	453.30
	Rb-22a	0.00	104.96	6.20	0.00	111.16	168.04	279.20
	Rb-22b	12.47	7.34	0.00	0.00	19.81	112.09	131.90
								1

	<i>a</i>		Commen	Blank &				
Range	No	Deodar	Kail	Fir	B.L.	Total	Un- commercial (Hac's)	Grand Total
	Rb-24a	87.00	0.00	52.81	0.00	139.81	119.09	258.90
	Rb-24b	0.00	0.00	24.96	0.00	24.96	13.44	38.40
Shopian	Rb-25	0.00	0.00	118.52	0.00	118.52	10.88	129.40
	Rb-26a	0.00	0.00	558.79	0.00	558.79	46.31	605.10
	Rb-26b	0.00	0.00	77.33	0.00	77.33	104.67	182.00
SUB-T	OTAL	107.41	1899.55	2361.70	0.00	4368.66	7677.54	12046.2
	Rb-28	0.00	0.00	438.63	16.22	454.85	168.45	623.30
	Ri-7	0.00	18.17	93.10	0.00	111.27	89.03	200.30
	Ri-8a	0.00	24.10	330.10	0.00	354.20	0.00	354.20
	Ri-8b	0.00	21.23	13.34	0.00	34.57	46.33	80.90
	Ri-9a	0.00	73.18	85.00	0.00	158.18	40.02	198.20
	Ri-9b	0.00	0.00	378.80	0.00	378.80	24.00	402.80
	Y-1	19.20	78.24	0.00	0.00	97.44	11.76	109.20
	Y-2	71.23	38.87	0.00	0.00	110.10	3.20	113.30
D	Y-3	102.34	0.00	0.00	0.00	102.34	27.16	129.50
Komsni	Y-4	129.50	0.00	0.00	0.00	129.50	12.10	141.60
	Y-5	135.87	0.00	0.00	0.00	135.87	5.73	141.60
	Y-6	86.87	30.99	19.87	0.00	137.73	7.77	145.50
	Y-7	68.80	24.30	0.00	0.00	93.10	4.00	97.10
	Y-8	114.23	23.36	0.00	0.00	137.59	10.11	147.70
	Y-9	120.43	6.79	0.00	0.00	127.22	38.68	165.90
	Rb-29	0.00	19.59	567.34	0.00	586.93	66.77	653.70
	Rb-30	0.00	0.00	363.04	0.00	363.04	53.86	416.90
	Rb-33	0.00	22.17	7.53	0.00	29.70	148.30	178.00
SUB-7	OTAL	848.47	380.99	2296.75	16.22	3542.43	757.27	4299.70
ТОТ	TAL	955.88	2280.54	4658.45	16.22	7911.09	8434.81	16345.90

# ANNEXURE-V

			Con	nmercial A	Blank &			
Range	Comptt. No	Deodar	Kail	Fir	B.L.	Total	Un- commercial (Hac's)	Grand Total
	Ri-3b	0.00	0.00	248.50	0.00	248.50	26.30	274.80
	Ri-4	0.00	0.00	105.49	0.00	105.49	141.51	247.00
	Ri-5a	0.00	0.00	119.93	0.00	119.93	68.57	188.50
	Ri-10	0.00	0.00	270.68	0.00	270.68	36.92	307.60
	Ri-11	0.00	0.00	224.10	0.00	224.10	28.80	252.90
ROMSHI	Ri-12b	0.00	0.00	334.00	0.00	334.00	105.20	439.20
	Ri-13	0.00	0.00	255.94	116.00	371.94	690.76	1062.70
	Ri-14	0.00	0.00	167.43	0.00	167.43	830.67	998.10
	Ri-15a	0.00	0.00	195.00	0.00	195.00	392.00	587.00
	Ri-21	0.00	0.00	277.99	0.00	277.99	1527.61	1805.60
	Ri-22	0.00	0.00	590.06	0.00	590.06	2413.94	3004.00
тот	AL	0.00	0.00	2789.12	116.00	2905.12	6262.28	9167.40

# Area Statement Of Ecological Conservation Working Circle

## ANNEXURE-VI

# List of Names of Forests (as per Revenue Record) with other particulars as per Forest Department Form No: 1

S.No	Name of Forest	Area (Ha.)	No. of Boundary Pillars	Length of demarcation line (Kms)
1.	Gurwattan (comptt. V-6 & V-7)	4445.00	Not a	vailable
2.	Sarpathri	5383.81	5	37.13
3.	Sedav	4472.95	52	33.03
4.	Hduo Shlwasn	1367.16	132	22.10
5.	Chamar Wani	110.26	63	12.42
6.	Tsotipur	70.64	43	6.78
7.	Chamder Daji	48.69	81	6.09
8.	Chinnar No: 1	24.74	24	3.13
9.	Chinnar No 2	28.73	23	2.99
10.	Chor Sang	6.76	27	1.92
11.	Rishnagri	72.68	54	7.55
12.	Gurnar Pattan Duban	326.06	33	32.81
13.	Ara Rambiara (Hirpur)	218.52	45	14.61
14.	Hapatnar	7338.16	6	46.09
15.	Rishapat Khud	28.01	67	5.36
16.	Bhagsar	4937.02	4	39.83
17.	Hapat Khud	2730.14	3	24.40
18.	Dhulimarg	2940.14	4	25.23
19.	Khaathpri	4088.62	5	29.95
20.	Hirpur Dachhan	608.37	42	14.84
21.	Chamnor	7.43	21	1.97

22.	Satnar	783.50	Not a	vailable
23.	Gurnar	144.28	70	10.14
24.	Devpur	1768.24	228	31.67
25.	Karewa Manlu	9.37	34	2.83
26.	Doni Nar Narpura	8.52	26	2.05
27.	Vishno Nar	3.55	20	0.96
28.	Gatipura	9.54	65	3.71
29.	Kathauhalan	6097.91	223	52.47

(a) No. of Forests: 29

(b) Area of Forests: 48078.8 Hectares including Wildlife Area

(c) No. of Pillars around the Forests: 1400 Pillars

(d) Length of Demarcation: 472.06 Kms

#### Romshi Range

S.No	Name of Forest	Area (Ha.)	No. of Boundary Pillars	Length of demarcation line (Kms)
1.	Nagwan	227.28	46	7.56
2.	Zampathri	4858.82	104	40.15
3.	Namblan	2891.96	3	24.79
4.	Yarwan	1226.13	184	19.21
5.	Sangerwani	40.83	57	5.43
6.	Khudol	162.08	70	9.20
7.	Khaigam	54.10	86	7.85
8.	Tulsi Nar Chuntinar	574.04	111	18.01

(a) No. of Forests: 8

(b) Area of Forests: 10035.34 Hectares

(c) No. of Pillars around the Forests: 661 Pillars

(d) Length of Demarcation: 132.2 Kms.

SHOPIAN RANGE					
Block	Beat	Comptt. No.	Name of Bahak		
		V-6	Ladigassan, Kanzal Khull, Doni-bela		
Ladigassan	Ladigassan		Kenwoin, Kilbal, Burzali (Pastu Pathri),		
Laaigussan	Luuigussun	V-7	Aderwas, Kanda Kuchi, Gatali pathri,		
			Phapaali-Pathri, Chorgali, Rainuar		
		V 2	Shahkote, Jabdun, Kella, Rabithar, Sanidec,		
	Sadam 4	V-3	Gorsipathri		
Gaday	Seaew-A	V-4ab	Agapathri, Jugal-bandi, Ahad Mirs Khud		
Sellew		V-4c	Maserdenajidokh, Good-duban		
	Saday P	V 50	Darawali pathri, Dridnard, Dather, Phola-ali		
	Seaew-D	v-Ja	pathri, Parli-pathri, Norji Pathir		
	Saidpora	V-1a	Ringser, Jedser, Tulihallan		
	Chotipora	V-2ab	Badinard, Dardkhot		
		Rb-2b	Shalwasan,		
Chotipora		Rb-3	Wani-toker, Drangdan		
	Hirpora	Rb-4	Baliwali, Kan-nalla, Rai-nuer		
		Rb-5ab	Adsern		
		Rb-6	Gurnarden		
		Ph 16ah	Dubjan, Bagam-pathri, Semkoor, Nungser,		
		R0-10a0	Katherkhall		
	Dubian	Rb-17ab	Javan, Nawjun, Marzi-pathri, Tad-allie,		
Methwani	Dubjun	10 1740	Raid-Alli, Zum-gali		
		Rb-18	Dard-koot, Naki-gali, Peer Jani Syeds		
		100 10	Zeyarat		
	Methwani	Rb-19ab	Choderbughak, Methwani, Badu-allie pathri,		
Zawoora-B	K. Manloo	Rb-24a	Chachmarg, Kacheldar		
	Kathahallan-4	Rb-24b	Badi-Pathri		
Kathahallan	humanan-A	Rb-25	Sukeeb ward, Khud pathri		
110000000000000000000000000000000000000	Kathahallan_R	Rh-26a	Dara wali, Kanlla wali, Wat Kreen, Kara		
	Kainanailan-D	KU-20a	wali, Hapatser, Durah		

# ANNEXURE-VII Statement Showing list of Bahaks Block Wise, Compartment wise

ROMSHI RANGE:						
Block Beat Comptt. No. Total Area (hac)						
Muchnothri	Muchnothni	Rb-27ab	Nati-Numblan, Kandi-khull			
Mughpaum	wiughpaum	Rb-28	Khaigour, Narzalun, Baurn-sumen, Naidkhoor			
	Thime	Rb-29	Dragai, Munzamdar, Jubdee, Rukh			
Thimas	Tillina	Rb-30	Shand-kandarun			
Imma	Negwon	Rb-31	Nawjun, Soi-khall, Maniwali			
	Inagwan	Rb-32	Pull pathri			
		Ri-1	Bujbroad			
	Pehlipora	Ri-3ab	Padder			
Zampathri		Ri-4	Brum-saman			
	Zommothni	Ri-6	Manzim Khall			
	Zampathri	Ri-7	Shukroo			
	Tragpathri	Ri-8ab	Trag-pathri			
Chowon	Chawan	Ri-9ab	Kooler			
Cliawali		Ri-10	Gadder			
		Ri-11	Kajan			
		Ri-12ab	Chakgi khall			
Chawan	Chawan	Ri-13	Routh Khall			
		Ri-14	Hussan Khall			
		Ri-15ab	Lank-dalaw			
	Namhlan	Ri-16	Hamu khall, Khandi khall			
	Inamolali	Ri-17	Miniwali			
Namblan		Ri-18	Ander khall			
		Ri-20ab	Khroot, Ganji pathri, Shedak, Marwali			
	Kehroot	Ri-21	Sagam			
		Ri-22	Gagadrayil, Pathrun			
Sangerwani	Sangarwani	Ri-23a	Chur khall, Daran dub, Sagam,			
Sangerwann	Sangarwani	Ri-24c	Khola wali, Nata wali, Bada wali, Churbur			

# ANNEXURE-VIII

#### **GLOSSARY OF BOTANICAL TERMS**

# The Flora of Shopian Forest Division with their common name, scientific name and family is as below.

Botanical Name	Common Name	English Name	Elevation (m ASL)	Habitat	Family	Part Used
Abies pindrow(Royle ex D.Don) Royle	Badul	Fir/	2300-3600	Т	Pinaceae	LE
Acer pictum subsp. mono(Maxim.) H.Ohashi	Kanzil	Painted Maple	2300-3600	Т	Aceraceae	RT
Achellia mellifoliumL	Pahl gass	Common yarrow	2000-3500	Н	Asteraceae	whole herb
Aconitum heteropylum Wall	Patrees	Indian Atees	2500-3200	Н	Ranunculaceae	RS
Adiantum capillus-Veneris L	Gewtheer	Venus hair fern	1500-3000	F	Pteridaceae	LE
Aesculus indica Colebr	Handoon	Horse- chestnut.	2000-2800	Т	Sapindaceae	SE & FR
Ajuga bracteosa wall ex.Bth	Jan-e- adam	Bracted bugleweed	1800-3500	Н	Labiateae	whole herb
Althaea officinalis L	Saz mool	Marshmallow	1000-3600	Н	Malvaceae	SE, FR,& RT
Arisaema jacquemontianum Blume	cobra plant	Jacquemont's Cobra-Lily	2000-2400	Н	Araceae	RT
Artemisia absenthium L	Tethwan	Common wormwood	1500-2000	Н	Asteraceae	LE
Asplenium adiantum L	Dade	Black spleenwrt	2100-2700	F	Aspleniaceae	LE
Atropa accuminata Royle	Belladona	Indian Balladona	1800-3600	Н	Solanaceae	RS
Berberis lycium Royle	Dandledar	Berberry	2000-2800	S	Berberidaceae	RT
Betula utililis D.Don	Barza	Himalayan Birch	4000-4500	Т	Betulaceae.	BR

Botanical Name	Common Name	English Name	Elevation (m ASL)	Habitat	Family	Part Used
Caltha palustris L	Mamiri	Marsh marigold	1800-3800	Н	Ranunculaceae	RT
Canabis sativa L	Bhang	Нетр	2000-2500	Н	Cannabaceae	LE
Cedrus deodara (Roxb.) G. Don f.	Deodar	Himalayan cedar	2000-2500	Т	Pinaceae	BR
Cichorium intybus L	Kasnil hand	Chicory	500-2000	Н	Asteraceae	LE & FL, SE, RT
Cirsium wallichii DC.	Kund	Wallich's thistle	1500-3000	Н	Asteraceae	RT
Corydalis rutaefolia (Sm.) DC.,	Corydalis	Rosy mauve	1800-2100	Н	Papaveraceae	FL, RT
Corylus colurna	Urni	-	2000-2200	Т		
Cynodon dactylon (L.) Pers.	Dramun	Bahama grass	1500-2000	Н	Poeceae	LE & RS
Datura stramonium L	Datur	Datura	2000-2200	S	Solanaceae	LE & FR
Euphorbia stracheyi Boiss.	Gud sochal	Sun spurge	3500-4800	Н	Euphorbiaceae	latex, RT
Fragaria nubicola Lindl. ex Lacaita	Jangli strawberry	Strawberry	1800-3800	Н	Rosaceae	FR
Geranium wallichianum D.Don	Ratan joth	Cranes bill	2500-3400	Н	Geraniaceae	RS
Hyoscyamus niger L	Ajwain	Henbane	1800-2500	Н	Solanaceae	SE
Indigofera heterantha Wall	Zand	Himalaya Indigostrauch	1800-3000	Н	Fabaceae	BR
Iris ensata Thunb	Krisham	Japanese iris	1800-2100	Н	Iridaceae	Rhizomes used
Iris hookeriana Foster	Mazaar posh/Mazaar mond	Hooker's iris	2400-3300	Н	Iridaceae	Rhizomes used

Botanical Name	Common Name	English Name	Elevation (m ASL)	Habitat	Family	Part Used
Juglans regia L	Dun	Walnut	2000-3000	Т	Juglandaceae	FR & BR
Juniperus communis L	Vethur	Common juniper	2800-3000	S	Cupressaceae	RT
Malva longifolia Sessé & Moc	Sochal	Honey tree	1900-2800	Н	Malvaceae	whole herb
Morchella esculenta (L.) Pers.	Kan-guchh	Morel mushroom	1800-3800	Fu	Morchellaceae	Whole
Morina longifolia Wallich ex DC	kund poosh	Whorl flower	1200-2500	Н	Caprifoliaceae	whole herb
Nepeta cataria L	Gand soi	Catswort/ Catnip	220-1820	Н	Lamiaceae	whole herb
Oryzopsis Spp.	Grass	Smilo grass	1800-2500	Н	Poaceae	
Picea smithiana (Wall.) Boiss.	Spruce	Himalayan Spruce	2400-3600	Т	Pinaceae	WD
Pinus wallichiana A. B. Jacks.	Kail	Blue pine	2000-2500	Т	Pinaceae	WD & RS
Platypus orientalis Wood & Bright	Bouin	Platypus	1850-2500	Т	Ornithorhynchidae	BR
Poa pratensis L	Gurgass	smooth meadow- grass,	1500-3300	Н	Poaceae	LE & SE
podophyllum hexandrum Royle	van vangun	Himalayan mayapple	2500-3400	Н	Berberidaceae	RS & FR
Polygonum nepalensis Meissn	Jangli chai	Nepal knotweed	1800-2500	Н	Polygonaceae	RT
Populus ciliata Wall. ex Royle	Phrast	Himalayan popular	2000-2200	Т	Salicaceae	LE
Prunus armeniaca L	chaair (khubani)	Apricot	1900-2400	Т	Rosaceae	FR
Rheum emodi Wall ex.Meissn	Pambe chalan	Rheum	2000-3500	Н	Polygonaceae	RS
Robinia pseudoacacia L	Kikar	False Acacia	1500-3000	Т	Fabaceae	LE & FL
Rosa rubiginosa L	Jangli Rose	Sweet briar	1000-3600	S	Rosaceae	FL, RT
Rumex Spp.	Abuj	Pineapple weed	2000-3500	Н	Polygonaceae	LE
Salix alba L	Butvir	White willow	1900-2400	S	Salicaceae	LE & BR

Botanical	Common	English	Elevation (m ASL)	Habitat	Family	Part Used
Salix caprea L	Bred mushik	Goat willow	1650- 2000	Т	Salicaceae	FL
Sambucus wightiana Wall. ex. Wight & Arn.	Fakil/ Elder	Asian dwarf elder	1800-2500	S	Caprifoliaceae	LE & FR
Ulmus wallichiana Planch.	Bran	Himalayan elm	2200-3000	Т	Ulmaceae	BR
Urtica dioica L	Soi	Nettle	1600-2400	Н	Urticaceae	LE
Vibernum grandiflorum wall ex	Kulmach	Himalayan viburnum	2700-4300	S	Caprifoliaceae	FR, RT
viola odorata L.	Bunafsha	sweet violet	1500-1800	Н	Violaceae	RT & FL
T-Tree, S-Shrub, H-Herb, LE-Leaf, BR-Bark, SE-Seeds, FR-Flower, RS-Root system						

# ANNEXURE-IX

# List of Important Medicinal Plants Found in Shopian Forest Division

S.No	Botanical Name	Natural Order/ Family	English Name	Local Name
1	Anemone obtusiloba Don	Ranunculaceae	Anemone	Rattanjog, Padar
2	Thalictrum javanicum Blume	"	Meadorua	Mamiri
3	Caltha palustris Linn	"	Marsh Mrigold	Baringu, Mamiri
4	Aconitum heterophyllum Wall	"	Mank's hood, Aconite	Patis, atis
5	A.Chasmanthum stapf	"	"	Benbalnag (Kash)
6	Adonis chrysocanthus Hook	"	Pheasaut's eye	Mohri (P.b)
7	Actaea spicata Linn	"	Baneberry eye	Richhbhilara
8	Cimicixfuga foetida Linx	"	11	Jiunti
9	Podophyllum hexandrum var, emodi	Berberdeae	11	Van-wangun (Kash)
10	Meconopsis aculeatal Royle	Papaveraceae	Blue (rock) poppy	Gul-ik-neelum (Kash), Kandeli (pb)
11	Corydalie govaniana Wall	Fumariaceae	Crestedlark fumitory	Bhutkeshi
12	Viola serpens Wall	Violaceae	Violet	Bunafsha
13	V. odorata Lin	"	11	"
14	Lavetera kashmiriana Comb.	Malvaceae	Tall Mallow	Resha-Khutumi (kash), Guli-i-khera (pb)
15	Geraniuum wallichianum Sweet	Geraniaceae	Geranium, Cranes bill	Kao-ashud
16	Skimmia laureola Hook	Rutaceae		
17	Dictamnus albus Linn	II	Burning Bush	pater (kash) Ner (pb)
18	Geum clatum Wall	Rosaceae	Avens	Gogjimool
19	Ptoentilla argvrophylla Hall (p.nepalensis Hall)	II	Silverweed, Barren strawberry	
20	Sambucus ebulus Linn	Caprifoliaceac		Gandal Gandhelu (pb)
21	Saxifraga ligulata Wall	Saxifragaceae	Londonpride	Zakhim-i-Hayat (kash) Silphata (pb)
22	Valeriana wallichii Wall	Valerianaceae	All heal	Mushkbala
23	Nardostachys jatamansi De	Valerianaceae	All heal	Jatamansi
24	Dipsacus inermis Wall	Dipsaceae	Teasel	Woppal Haak (kash)
25	Inula racemosa Hook, (I.grandiflora Wild)	Compositae	Elecampane	Pushkar (Kash), Zanjabil-i-Shami (pers)

26	Senecio jacquemontiana Benth	"	Ragwort, Groundsel	Hater-i-mool
27	Jurinea macrocephala Benth	11		Dhup, Gugal dhup
28	Artemisia spp. Linn	п	Wormseed, Santozin plant	Tehwen (kash.) Afsantin (pers)
29	Saussurea Lappa Clarke	"	Kuth	Kuth (Kash), Kushtha (Sans), Chobi-quwat (Pers)
30	Taraxacum officinale Wigg	"	Dandelion	Hand (Kash.)
31	Macrotomia Benthami De.	Boraginaceae		Kahzaban
32	Gentiana kurrool Royle	Gentianaceae	Gentian	Nilkanth (Kash.) Ludut (Sans)
33	Codonopis ovata, Benth	Campanulace		Ludut
34	Atropa belladona Linn	Solanaceae	Dwale or Deadly Nightshade	Mait-brand (Kash.) Ban Tamaku (pb)
35	Picrorhiza kurroo Benth	Scrophhularac- eae	Bitter root	Kaur
36	Verbascum thapsus Linn	II	Great Mulleion (Adm's Flanel/ Shepherd's club)	Shal-a-lut (kash.) Geedar Tamaku
37	Pedicularis spp.	11	Lousewort	Mishran
38	Plectranthus rugosus Wall	Labiatae		
39	Thymus scrphyllum Linn	п	Wild Thyme	Javaind (Kash.) Ajwain (Pb.)
40	Salvia moorcroftiana Wall	11	Sage	Kali-jari
41	Brunella vulgaris Linn	"	Self heal	Kal-vioth (Kash.) Ustakhdus (Pers)
42	Polygonum polystachyum Wall and (P.alpinum, Wall)	Polygonaceae	Knot grass	Tsokaladur (Kash), Khatusaag/khatanari (Guj)
43	Phytolacea acinosa Rosb.	Phytolaccaceae	Pokeweed	Hapatchur, Lubarsaag
44	Cannabis satival Linn	Uritceaceae	Нетр	Bhang
45	Dioscorea deltoida Wall	Dioscoreaceae	Yam	
46	Iris kumaonensis Wall	Iridaceae	Flagflower fleur- de-lis	Krisham (Kash)
47	Orchis latifolia Linn	Orchidaceae	Orchid	Salab-misri (Per.)
48	Ephedra gerardiana Wall	Gnetaceae (Gymonosperm ae)	Sea-grape	Asmai buti
49	Adinatum venustum Don	Filicles (Cryptogamae)	Maiden Hair Fern	Kalijanth (Hind), Pari-i-Siyaohan (Kash)
50	Morchella spp. (M.esculenta) Linn.	Discomycetes (Cryptogamae)	Morels	Kan-guchh (Kash.) Guchhi (Pb)

# **Annexure-X** Range Wise Forest Road Details of Shopian Division

# Shopian Range

C No	Name of the Board	Compartment			Langth (km)	D
<b>5.</b> <i>N</i> <b>0</b> .	Name of the Road	From	Via	То	Lengin (Km)	Remarks
01.	Dubjan – Zuban Road	Rb-16	Rb-17	Rb-18	05.00	Needs repair and construction of one bridge at Zumgol
02.	Chachmarg – Methwani Road	Rb-22	Rb-24	Rb-19	07.00	Needs repair
03.	Gathipora- Sukibaid Road	RB-23	RB-26	Rb-25	07.00	Needs repair
04.	Hirpora – Baliwali Road	Rb-06	Rb-03,Rb-04	Rb-05	05.00	Needs repair
05.	Gathipora – Watkreen Road	Rb-26	-	-	05.00	Needs repair
06.	Sedow to Ladigasan Road	V-4	V-5	V-6	05.00	Needs repair
07	Sedow to Kaniwani Road via Shahkoot	V-2	V-3,V-4	V-7	07.00	Needs repair

# Romshi Range

C Ma	Name of the Doad		Compartm	ent	Langth (km)	<b>D</b> amanka				
<b>S.IVO</b> .	Nume oj ine Koua	From	Via	То	Lengin (Km)	Kemurks				
01.	Rakhun – Shukroo Road	Ri-1	-	Ri-2	0.02	Needs repair				
02.	Dunardo – Manywali Road	Ri-3a	Rb-31	Rb-32	0.08	Needs repair				
03.	Rakhun – Pudder Road	Ri-3b	Ri-4, Ri-5	Ri-6	16.00	Needs Construction				
04.	Nasarpora – Nawjan Road via Raniwali	Rb-31	-	-	11.00	Needs Construction				
05.	Palpathri – Suokhul Road	Rb-32	-	-	06.00	Needs repair				
07.	Shalidara Muldajan Road	Rb-29	-	Rb-30	05.00	Needs repair				
08.	Gathipora Road	Rb-29	-	-	07.00	Needs repair				
09.	Naserpora Road	Rb-30	-	-	06.00	Needs repair				
10.	Tragpathri – Katerkhull via Gadder, Wolkhyan	Ri-9b	Ri-17, Ri-18	Ri-13	25.00	Needs repair				
11.	Gadder – Bijrari Road	Ri-7	Ri-5, Ri-6	Ri-4	15.00	Needs repair				

# Annexure-XI

# Details of Forest Area diverted for Non-Forestry Purposes in the last 10 years

S. No	Year/Agency	Beacon			PMGSY			Irrigation		PDD		Mugal Road			R&B			PHE			Power Grid Corporation			Telecomunt.				
		Hact	Kanal	Marla	Hact	Kanal	Marla	Hact	Kanal	Marla	Hact	Kanal	Marla	Hact	Kanal	Marla	Hact	Kanal	Marla	Hact	Kanal	Marla	Hact	Kanal	Marla	Hact	Kanal	Marla
1	2003-04	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	2004-05	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	2005-06	0	0	0	0	0	0	0	0	0	0	0	0	9	9	0	0	0	0	0	0	0	0	0	0	0	0	0
4	2006-07	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	2007-08	0	0	0	0	0	0	0	0	0	0	0	0	66 ( W L ar ea )	16	2	0	0	0	0	0	0	0	0	0	0	0	5
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6	2008-09	0	0	0	6	2	6	0	0	0	0	0	0	0	0	0	0	0	0	0	16	5	0	0	0	0	0	0
7	2009-10	0	0	0	0	16	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	2010-11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9	8	0	0	0	0	0	0
9	2011-12	0	0	0	1	1	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	2012-13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

11	201 3- 14 upt o 31/ 1/1 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T	otal	0	0	0	7	19	14	0	0	0	0	0	0	75	25	2	0	0	0	0	25	13	0	0	0	0	0	5

PMGSY: Prime Ministers Gram Sadak Yojana, PDD-Power Development Department, R&B: Roads & Buildings, PHE: Public Health Engineering

<i>S</i> .	Name of	Logation	Latitude/	Plinth	No. of	Pomarks/ Present Condition
No.	Establishment	Location	Longitude	area feet	Rooms	Remarks/ Fresent Conauton
01	Divisional Complex	Padnawan (Mugal Road)	N 33 <sup>0</sup> 41'.379"		07	Newly Constructed in year 2013-14
01.	Divisional Complex	Tudpuwan (Mugai Roud)	E 74 <sup>°</sup> 47'.968"		07	Rewly constructed in year 2015 11
02.	Range Office Shopian	Padpawan (Mugal Road)	N 33 <sup>°</sup> 41'.376"	36 x 40	04	Newly constructed in year 2013-14
	8		E 74º 47'.942"		• •	
03	DFO's Residential	Shopian (Near	N 33 <sup>°</sup> 42'.979"	30 x 32	03	Needs up-gradation
05.	Quarter	Mohammadia Institute)	E 74 <sup>0</sup> 49'.808"	50 X 52	05	reeds up-gradation
04	R.O's Residential	Shopian (Near	N 33 <sup>0</sup> 42'.979"	$15 \times 30$	03	Needs Un-gradation
04.	Quarter	Mohammadia Institute)	E 74 <sup>0</sup> 49'.808"	15 x 50	05	Needs Op-gradation
0.5	Awaren aga Cantra	Varania Zania ara	N 33 <sup>0</sup> 41' 15.45"	25 x 40	04	Newly constructed in year 2011 12
05.	Awareness Centre	Kalewa Zawoola	E 74 <sup>0</sup> 44' 10.13"	55 X 40	04	Newly constructed in year 2011-12
06	Charle Post Domail	Chowgam(Shopian	N 33 <sup>0</sup> 41'.961"	27 x 27	04	Nowly constructed in year 2011 12
00	Check Fost Domain	Sedev/Hirpora Road)	E 74 <sup>°</sup> 48'.936"	2/ X 2/	04	Newly constructed in year 2011-12
07	Chaolz Post Largom	Gratbal Mohalla (Shopian-	N 33 <sup>°</sup> 42'.904"	16 v 18	02	Dilanidated condition
07	Check Fost Largani	Bijbehara/Kadder Road)	E 74 <sup>°</sup> 50'.435"	10 X 10	02	Dhapidated condition
00	Chaole Doot Mimondon	Mimendar	N 33 <sup>°</sup> 42'.590"	20 x 22	02	Dilaridated condition
08	Check Post Millendar	(Shopian-Kulgam Road)	E 74 <sup>0</sup> 50'.570"	20 X 22	02	Dhapidated condition
07	Check Post Keegam	Keegam (Shopian-	N 33 <sup>0</sup> 47'.251"	20 x 18	01	Dilapidated condition
07.	Check I ost Reegani	Pulwama Road)	E 74 <sup>0</sup> 51'.676"	20 x 10	01	Diaplated condition
08	Chaolz Post Vahil	Vehil (Shopian-Kulgam	N 33 <sup>°</sup> 41'.223"	10 x 20		Damaged (non functional)
08.	Check Fost Vehill	Road)	E 74 <sup>0</sup> 51'.847"	19 X 20	-	Damaged (non functional)
00	D O'a Hut	Ladigagan	N 33 <sup>0</sup> 39'.511"	22 x 24	02	Nowly constructed in year 2012 14
09.	D.O S Hut	Lauigasan	E 74 <sup>°</sup> 46'.722"	32 X 24	02	Newly constructed in year 2013-14
Rom	shi Range:					
01	Pange Office Pomshi	Dulwomo	N 33 <sup>°</sup> 51'.795"	$15 \times 20$	05	Good Condition
01.	Kange Office Komsni	ruiwaiiia	E 74 <sup>°</sup> 53.952"	15 X 50	05	Good Condition

## ANNEXURE-XII Infrastructure details of the Shopian Division

02.	B.O's Hut	Pulwama	N 33 <sup>0</sup> 51'.795" E 74 <sup>0</sup> 53.957"	12 x 30	02	Dilapidated condition
03	Check Post Tikna	Tikna	N 33 <sup>°</sup> 50'.770"	22x16.6	01	Dilanidated condition
0.5.	Check I ost Tikha	(Pulwama-Rajpora Road	E 74 <sup>°</sup> 52'.254"	22210.0	01	Dhapidated condition
04	Chask Post Drongnord	Drangnard (Pulwama-	N 33 <sup>0</sup> 47'.597"	$27.2 \times 15.2$	01	Dilanidated condition
04.	Check Fost Dialightu	Keller Road)	E 74 <sup>0</sup> 49'.297"	27.5X15.5	01	Dhapidated condition
05	PO's Unt	Kallar	N 33 <sup>°</sup> 46'.583"	20 x 24	02	Newly constructed in year 2012 12
05.	D.O. S Hut	Kellel	E 74 <sup>0</sup> 46'.299"	29 X 24	03	Newly constructed in year 2012-15
06	PO's Unt	Vormon	N 33 <sup>°</sup> 48'.290"	20 x 24	02	Newly constructed in year 2012 12
00.	D.O. S Hut	i ai wali	E 74 <sup>0</sup> 47'.740"	29 X 24	03	Newly constructed in year 2012-15
07	D O 'a Unt	Thoring	N 33 <sup>°</sup> 45'.962"	20 x 24	02	Newly constructed in year 2012 12
07.	D.O. S Hut	Thaima	E 74 <sup>°</sup> 45.285"	29 X 24	02	Newly constructed in year 2012-15
Kak	apora Range:					,
01	Range Office	Valtanana	N 33 <sup>°</sup> 57'.124"	26 x 40	04	Newly constructed in year 2012 14
01.	Kakapora	Какарота	E 74 <sup>°</sup> 55.393"	50 X 40	04	Newly constructed in year 2013-14
02	Chaok Post Kakanana	Kakapora (Pulwama-	N 33 <sup>°</sup> 56'.834"	18 x 20	02	Dilaridated condition
02	CHECK FOST KAKAPOTA	Srinagar Road)	E 74 <sup>°</sup> 55'.631"	10 X 20	02	Diapidated condition

	pa	pa					Targ	ets Achiev	ved	
	ocate	pende		Plantation	Fencing				Infrastri	ucture raised
Year	ids alle	ds exp	Area in Ha	Phy	Phy	Office Building	Hut	Others	Total	Remarks
	Fun	Fun		No.s	<i>Rfts</i>	No's	No' s	No's	No's	No's
2009-10	-	-	-	-	-	-	-	-	-	-
2010-11	244.98	194.75	123	90145	36260	1	1	-	2	<ol> <li>const. of awarness centre at Zawoora</li> <li>Malies Hut at Nagbal Nursery</li> </ol>
2011-12	198.537	248.517	259	147500	77700	-		1	1	<ol> <li>Completion of pending work of Awarness centre at Zawoora</li> <li>Walling around Div. Complex at Padpawan</li> </ol>
2012-13	232.90	178.444	203	242474	61420	-	4	2	6	<ol> <li>Construction of Range Office kakapora</li> <li>Construction of B.O.'s Hut at Tharina</li> <li>Construction of B.O.'s Hut at Yarwan</li> <li>Alternation &amp; Restructuring of residential Quarter of Range Office Romshi</li> <li>const. of B.O.'s Hut at Keller</li> <li>const. of walling around SC Range Zawoora</li> </ol>
2013-14 (upto 01/2014)	63.505	55.101	45	14250	13500	-	2	1	3	<ol> <li>Completion of Range Office Shopian</li> <li>Furnishing/ Furniture of newly constructed Div. Office</li> <li>Const. of Inspection Hut at Dubjan (plinth completed)</li> <li>Const. of B.O.'s Hut at Sedow (Upto Truss level)</li> </ol>
G.Total	739.922	676.812	630	494369	188880	1	7	4	12	

#### ANNEXURE-XIII

### Details of CAMPA funds as on date with details of expenditure made item wise.

#	Year	Name of the Scheme	Comptt. No.	Area Covered (hacs)	Fencing (rfts)	Plants Planted	Fin (in lacs)
			Rb-26b	35	8750	28000	0.00
		State Sector	V-32	20	5500	17235	9.00
		State Sector	Construction of I	Divisional Complex at Pa	adpawan		7.64
1	2008-09		Construction of Construction	Guard Hut at Vishroo Ba	ılla Keller		3.26
		District Sector Shonion	Rb-1a	30	7500	27304	4.50
		District Sector Shopian	Construction of I	Brick walling around DF	O's Residential q	uarter at Shopian	2.50
		District Sector Pulwama	Construction of I	Brick Walling at Range (	Office Pulwama		2.00
		Total		85	21750	72539	28.90
		State Sector	Rb-26a	30	7000	20000	5.00
			Construction of I	Divisional Complex at P	adpawan		5.00
2	2009-10	District Sector Shoring	Rb-19	30	9000	16345	5.00
		District Sector Shopian	Construction of Construction	Check Post Domail			3.05
		District Sector Pulwama	Construction of I	Brick Walling at Range (	Office Pulwama		2.05
		Total		60	16000	36345	20.10
		State Sector	Ri-1	23	8800	32300	6.32
3	2010 11	District Sector Shonian	Rb-23	20	7000	21000	5.00
5	2010-11		Construction of 2	2nd Storey of Check Pos	t Domail		3.05
		District Sector Pulwama	Y-4	10	3500	7500	2.05
		Total		53	19300	60800	16.42
		State Sector	V-2ab	46	13000	14418	5.00
		State Sector	Construction of I	Divisional Complex at P	adpawan		10.00
4	2011-12	District Sector Shonian	V-5	35	10500	21500	6.98
		District Sector Shopian	Construction of 2	2nd Storey of Check Pos	t Domail		3.05
		District Sector Pulwama	Y-9	15	5000	8100	2.05
		Total		96	28500	44018	27.08
			Rb-26a	40	12000	14000	12.33
5	2012 12	State Sector	Rb-33	46	13000	22000	12.55
5	2012-13		Construction of I	Divisional Complex at P	adpawan up to Tr	uss level	6.98
		District Sector Shopian	V-5	35	10500	11500	5.00

#### ANNEXURE-XIV Developmental activities carried under various Five Year Plans in the Division

			Completion of Pe	ending work of Check Po	ost Domail		3.05
		District Sector Pulwama	Ri-24a	15	5000	8100	2.65
		Total		136	40500	55600	30.01
		State Sector	Rb-22b, Ri-24a	14	4200	6500	3.200
6	2013-14	State Sector	Pending work of	Divisional Complex at I	Padpawan		8.630
0	(12/2013)	District Sector Shopian	Rb-23	7	2000	-	0.875
	(12,2010)	District Sector Pulwama	Ri-23b	10	3000	3000	1.926
		Total		31	9200	9500	14.631

			Deo	dar					Kail	•		ſ		Fir		
Vear	B-	Grade (G	Firth in inc	h)	C-gi	rade	B	-grade (G	irth in in	ch)	C- grade	B-g	grade (G	Firth in in	ch)	C- grade
<i>i</i> cur	36-47	48-59	60-99	100	Upto 59	60" & over	36- 47	48-59	60-99	100	All girth	36- 47	48- 59	60-99	100	All girth
2001-																
02	214.66	307.1	347.07	556.16	253.25	340.06	284.7	357.11	355.23	436.11	227.6	154	180.1	191.35	192.6	126.33
2002-																
03	381.17	455.22	509.39	571.53	295.5	356.49	276.8	343.06	392.5	440.57	227.7	65.06	93.87	107.47	218.6	222.62
2003-																
04	535.56	606.87	579.64	362.78	392.3	461.51	464.5	487.25	513.24	576.78	311.6	229.3	253.4	272.69	297.2	176.71
2004-																
05	552.05	661.09	740.02	918.01	402.03	527.03	500.3	581.7	687.5	617.3	257.3	363	336.3	353.2	362.5	223.16
2005-																
06	699.69	799.91	947.6	1188.7	509.15	723.83	580.2	665.43	724.06	776.75	436.8	370.4	419.6	443.04	480.2	288.46
2006-																
07	730.97	896	1116.37	1457.4	806.04	634.14	687.2	763.57	815	1010.4	515.8	390.4	426	446.57	471.8	297.73
2007-																
08	932.84	1126.8	1326.08	1801.7	703.9	987.08	771	807.76	963.97	1116	580.7	410.9	446.1	474.32	508.8	318.06
2008-																
09	1114.5	1357.2	1622.46	1934	855.19	1241.3	331.5	1033.7	1201.1	1216.6	571.2	431.1	475.2	551.36	615.1	374.36
2009-																
10	1214.1	1396.6	1826.65	2189.5	921.28	1324.5	1032	1135.4	1316.1	1386.7	681.2	490.7	574.7	680.85	722.1	383.48
2010-	1005	1200	1500.00	2210.1	001.15	1270 5	0.52	1166 -	1200	1402 4				(20.20	<b>752</b> 0	401.01
11	1095	1308	1729.36	2210.1	891.15	1378.5	953	1166.5	1309	1483.4	/55.5	563.2	573.7	638.28	752.8	401.01
2011-	1006 7	12150	1650.01	21.40.2	077.54	10.00 7	1011	1150.0	1222.4	1460.1	70.1	1710		((1.50		270 71
12	1096.7	1315.9	1652.81	2149.2	877.54	1363.7	1011	1158.8	1323.4	1460.1	731	474.2	577.4	661.53	/35.7	5/9./1
2012-	0	1604.0	2012 (7	0074 4	1070 4	1567 1	0	1102 7	1406 1	1(10.0	770 4	0	5 <b>5</b> 1 <b>7</b>	(2)(	725.0	412.17
13	0	1624.9	2013.67	23/4.4	10/0.4	1567.1	0	1193.7	1406.1	1618.9	7/0.4	0	551.7	626	735.8	413.17

ANNEXURE-XV Average sale rates of SFC auction conducted w.e.f. the year 2001-02 upto 2012-13

#### 1979-80 to 31-12-2013 Vol. marked Lease rate applied *S*. Remarks Range Comptt: Year of Marking **Bill** issued No Kail Fir Kail Fir 30142 9.85 348391.00 1979-80 4569 11.27 1996-97 3441 38861 57.08 1989484.00 45.70 1999-20 2562 19316 57.08 45.7 683613.00 2001-02 24948 57.08 1159247.00 295 45.7 781117.00 2003-04 1242 15541 57.08 45.7 2004-05 7310 57.08 334067.00 --2005-06 17778 57.08 812455.00 --Ri-1 1 2006-07 10126 57.08 397344.00 --2011-12 327752.00 57.08 8352.5 --2012-13 66826 54.45 2622252.00 274 39.24 Romshi 2013-14 8818 39.24 346018.00 --1986-87 38.9 2062089.00 53010 --1992-93 4601 45.7 217058.00 119 57.08 1996-97 17357.5 57.08 45.7 793238.00 -2003-04 845 10755 57.08 45.7 539736.00 2 Ri-2 2008-09 9634 39.24 378038.00 --2011-12 9831 385768.00 39.24 --2012-13 1574996.00 40137.5 39.24 --1979-80 72 271309 2673205.00 11.27 9.85 3 Ri-3(a) 1986-87 64205 38.9 2555296.00 1035 53.2 1988-89 102046 45.7 4663502.00 --45.7 840909.00 1992-93 135 18232 57.08 3 1996-97 17779 45.7 812500.00 Ri-3(a) --2003-04 29489 45.7 1356552.00 156 57.08 2011-12 10091 39.24 395971.00 --2012-13 35583.5 39.24 1396297.00 \_ -

#### **ANNEXURE-XVI**

Royalty statement showing the position of marking conducted in Shopian Forest Division and handed over to SFC since

4		Ri-5(b)	1997-98	274	103047	57.08	45.7	4724888.00	
			1992-93	3304	29160	57.08	45.7	1109904.00	
			1996-97	9759	44145	57.08	45.7	2574470.00	
			1997-98	7989	42425	57.08	45.7	2374470.00	
	Romshi		1999-20	12985	16727	57.08	45.7	905732.00	
			2001-02	3863	50974	57.08	45.7	2550012.00	
5		Ri-6	2003-04	2565	19360	57.08	45.7	1031162.00	
			2004-05	3254	9645	57.08	45.7	626543.00	
			2005-06	-	14016	-	45.7	640508.00	
			2006-07	-	12308	-	39.24	482966.00	
			2011-12	-	11887.5	-	39.24	466466.00	
			2012-13	-	94808	-	39.24	3720266.00	
			1996-97	2361	22433	57.08	45.7	1181918.00	
ſ			1997-98	7896	38312	57.08	45.7	2201562.00	
6		K1-/		-	200	-	45.7	9140.00	Additional bill
			1999-20	218	12079	57.08	45.7	564453.00	on prev. marking
			2002-03	782	22200	57.08	45.7	218479.00	
			2004-05	272	2819	57.08	45.7	144354.00	
			2005-06	581	11139	57.08	45.7	5422193.00	
			2006-07	212.5	5859.5	54.45	39.24	241498.00	
6		Ri-7	2011-12	-	7639	-	39.24	299754.00	
			2012-13	-	53689	-	39.24	2106756.00	
			2013-14	-	18227.5	-	39.24	715247.00	
			1988-89	16394	77975	57.08	45.7	4499227.00	Convt. Vol.
			1988-89	1119	5820	57.08	45.7	3298467.00	
7		D: 9(a)	1988-89	4274	-	57.08	-	312315.00	
/		R1-8(a)	1989-90	7031	63002	57.08	45.7	2982694.00	
			1989-90	68524	56485	57.08	45.7	13601233.00	
	Romshi		1992-03	9973	213783	57.08	45.7	4654839.00	
					89400			0.00	
			1996-97	3070	38300	57.08	45.7	1923662.00	N. fallen marking dry standing
8		Ri-8(b)	1997-98	6044	150083	57.08	45.7	7203785.00	, 0

			1999-20	173	10781	57.08	45.7	502567.00	
			2002-03	2170	228213	57.08	45.7	10553312.00	
			2011-12	-	6347.5	-	39.24	249076.00	
			2012-13	-	347748	-	39.24	13645632.00	
9		Ri-9(a)	2009-10	264	-	54.45	-	14375.00	(PMGSY)
			1988-89	7108	57180	57.08	45.7	1712230.00	Convt. Vol.
10		Ri-9(b)	1988-89	864	32274	57.08	45.7	1524239.00	
			1989-90	2796	44742	57.08	45.7	2204305.00	
			1992-93	1815	41240	57.08	45.7	988768.00	
			1992-93	40	3334	57.08	45.7	154647.00	
			1996-97	7080	51008	57.08	45.7	2375589.00	N. fallen marking dry standing
			1997-98	2665	47310	57.08	45.7	2314985.00	
10			1999-20	-	11887	-	45.7	543236.00	
10		K-9(b)	2002-03	373	42384	57.08	45.7	1958240.00	
			2003-04	-	13993	-	45.7	639480.00	
			2004-05	-	7064	-	45.7	322825.00	
			2012-13	-	68085	-	39.24	2671655.00	
			2013-14	-	78555	-	39.24	308248.00	
	Romshi		1988-89	11002	197936			0.00	bill not issued
			1992-93	80	6223			0.00	bill not issued
11		Ri-10	1996-97	780	51008	57.08	45.7	2375588.00	
			2007-08	-	18116	-	39.24	710872.00	
			2011-12	-	16274	-	39.24	638592.00	
			2012-13	-	18132	-	39.24	711500.00	
			1992-93	118	22151	57.08	45.7	1019036.00	
			1996-97	2162	7745	57.08	45.7	9904477.00	
			1999-20	436	18340	57.08	45.7	486477.00	
			2003-03	14620	30050	57.08	45.7	1456735.00	
12		Ri-11	2003-04	772	20914	57.08	45.7	999835.00	
			2005-06	-	6568	-	45.7	300134.00	
			2006-07	-	8232.5	-	39.24	323043.00	
			2011-12	-	7316.5	-	39.24	287099.00	

			2012-13	-	95575	-	39.24	3750363.00	
			1997-98	1434	49173	57.08	45.7	2329060.00	
		[	1999-2k	217	10485	57.08	45.7	491551.00	
			2002-03	1395	13751	57.08	45.7	708047.00	
13		Ri-12(a)	2003-04	-	7052	-	45.7	322276.00	
			2005-06	-	7069	-	45.7	323030.00	
			2012-13	-	42935	-	39.24	1684769.00	
			1997-98	1599	38946	57.08	45.7	1871103.00	
14		Ri-13	2011-12	-	12657.5	-	39.24	496680.00	
			2012-13	-	82618	-	39.24	3241930.00	
15		Ri-15 (b)	1997-98	702	35315	57.08	45.7	1654870.00	
			1999-20	444	13096	57.08	45.7	623831.00	
	D 1.		1997-98	1515	24207	57.08	45.7	1192736.00	
	Romshi		1999-20	1135	21073	57.08	45.7	519766.00	
			2003-04	550	28448	57.08	45.7	1331468.00	
16		Ri-16	2005-06	636	6614	57.08	57.08	338557.00	
10			2006-07	-	8861.5	-	39.24	347725.00	
			2011-12	-	8543	-	39.24	335227.00	
			2012-13	-	74470	-	39.24	2922203.00	
			1996-97	248	20157	57.08	45.7	935422.00	
			1999-2000	-	11551	-	45.7	527881.00	
		D: 17	2001-02	-	18676	-	45.7	853493.00	
17		KI-1/	2003-04	-	16735	-	45.7	764790.00	
			2006-07	-	4825	-	39.24	189353.00	
			2011-12	-	14107	-	39.24	553559.00	
			2012-13	-	87656	-	39.24	3439621.00	
			1997-98	1934	31005	57.08	45.7	1527321.00	
			1999-20	435	21075	57.08	45.7	493973.00	
			2003-04	708	12526	57.08	45.7	612851.00	
18		Ri-18	2005-06	-	13894	-	45.7	634956.00	
			2006-07	-	5359.5	-	39.24	210307.00	
			2011-12	-	14140.5	-	39.24	554873.00	
			2012-13	-	77038	-	39.24	3022971.00	

19		Ri-19	1996-97	1849	25337	57.08	45.7	1263442.00	
			1997-98	1099	56696	57.08	45.7	2653730.00	
			1999-2000	78	26200	57.08	45.7	1201793.00	
			2003-04	305	13036	57.08	45.7	630564.00	
20		Ri-20(a)	2003-04	-	6535	-	45.7	298626.00	
	Romshi		2005-06	-	13712	-	45.7	626616.00	
			2006-07	-	10014.5	-	39.24	3929669.00	
			2011-12	-	5687.5	-	39.24	223178.00	
			2012-13	-	68771	-	39.24	2698574.00	
21		Ri-20(b)	2011-12	-	6824.5	-	39.24	267793.00	
			2012-13	-	57120	-	39.24	2241075.00	
22		Ri-23(a)	2013-14	-	125623	-	39.24	4929447.00	
			1986-87	-	12232	-	38.9	514725.00	
			1988-89	3623	30501	57.08	45.7	1600696.00	
23		Rb-26	1999-20	-	12125	-	45.7	554113.00	
			2002-03	-	31501	-	45.7	1439596.00	
			2003-04	-	5466	-	45.7	249796.00	
			2005-06	-	19828	57.08	39.24	778051.00	H/o 2006
22		Rb-26	2008-09	-	19523	-	39.24	766083.00	
			2011-12	-	9839.5	-	39.24	386102.00	
			2012-13	-	194644	-	39.24	7637831.00	
			1992-93	13	3172	57.08	45.7	145702.00	
23		Rb-26(b)	1998-99	8066	43104	57.08	45.7	1376624.00	
			2013-14	-	18058	-	39.24	708596.00	
			1992-93	378	8592	0		0.00	bill not issued
			1997-98	760	7314	57.08	45.7	377631.00	
24		Rb-27(a)	2003-04	-	6637	-	45.7	303288.00	
			2006-07	-	8577	-	39.24	492442.00	
	Romshi		2012-13	-	83134	-	39.24	3262178.00	
			1992-93	72	0	0		0.00	bill not issued
			1997-98	2665	31421	57.08	45.7	1588058.00	
			2002-03	-	37862	-	45.7	1730293.00	
25		Rb-27(b)	2003-04	-	7565	-	45.7	345720.00	

			2006-07	-	8577	-	39.24	336561.00	
			2011-12	-	9982.5	-	39.24	391713.00	
			2012-13	-	99727	-	39.24	3913287.00	
			1997-98	11867	110343	57.08	45.7	5720043.00	
			1999-20	-	18679	-	45.7	853631.00	
26		Rb-28	2002-03	-	55571	-	45.7	0.00	bill not issued
			2003-04	-	21272	-	45.7	972130.00	
			2006-07	-	9885.5	-	39.24	387907.00	
			2012-13	-	273271.5	-	39.24	10723174.00	
			1980-81	8465	439733	13.54	11.13	5008844.00	
			1985-86	455	89265	31.42	22.42	2054001.00	
			1987-88	2987	51787	57.08	45.7	2537163.00	
			1996-97	1469	52859	57.08	45.7	2499462.00	
			1997-98	10365	83697	57.08	45.7	4416587.00	
27		Rb-29	1999-20	-	16940	-	45.7	774159.00	
			2003-04	-	24890	-	45.7	1137473.00	
			2004-05	-	4917	-	45.7	224684.00	
			2005-06	-	28724	-	45.7	1312664.00	
			2006-07	-	13966.5	-	39.24	548045.00	
			2012-13	-	143815.5	-	39.24	5643320.00	
	Romshi		2013-14	-	76346	-	39.24	2995817.00	
			1996-97	1413	12281	57.08	45.7	639611.00	
			1996-97	9432	98300	57.08	45.7	5030669.00	
			2001-02	96	73204	57.08	45.7	335090.00	
			1999-20	732	11764	57.08	45.7	579397.00	
28		Rb-30	2002-03	590	162027	57.08	45.7	7438311.00	
			2004-05	-	8720	-	45.7	398504.00	
			2005-06	-	14642	-	45.7	669139.00	
			2006-07	-	14654	-	39.27	575023.00	
			2012-13	-	140917	-	39.24	5529603.00	
			2013-14	-	71211	-	3924	2794320.00	

			1007 08	6214	12017	57.08	15 7	2317373.00	(Additional bill
20		Dh 21	1997-98	0214	42947	57.08	43.7	231/3/3.00	prev. marking)
29	Pomshi	K0-31	1997-98	-	330	-	45.7	15081.00	
	Komsm		1999-2k	95	19280	57.08	45.7	886519.00	
30		Rb-32	1997-98	22153	47319	57.08	45.7	3426972.00	
			1999-2k	265	14486	57.08	45.7	677136.00	
1		Rb-1(ab)	1997-98	12908	79187	57.08	45.7	4355634.54	
		Rb-1(a)	2005-06	814	-	57.08	-	46463.00	
		Rb-1(b)	2005-06	15211	1814	57.08	45.7	952355.00	
2		Rb-2(a)	1979-80	63296	7968	11.27	9.85	791830.00	
			2005-06	53124	525	57.08	45.7	3059113.00	
		Rb-2(b)	2005-06	8540	6541	57.08	45.7	786364.00	
3		Rb-3	1996-97	670	33651	57.08	45.7	1576094.00	
			2005-06	881	-	57.08	-	50259.00	
	Shopian		1995-96	156	23947	57.08	45.7	1103282.00	
4	-	Rb-4	1996-97	7849	31032	57.08	45.7	1866183.00	
			1999-2k	-	13121	-	45.7	604199.70	
			2007-08	661	44852	54.45	39.24	1795983.00	
			1983-84	479	20353	19.42	17.35	383201.00	
			1985-86	2411	108125	31.42	22.85	2546401.00	
5		Rb-5	1987-88	1530	91787	57.08	45.7	4291138.00	
			1988-89	1230	87444	57.08	45.7	4066399.00	
			1992-93	56	7957	57.08	45.7	366831.00	
			1996-97	513	14327	57.08	45.7	686402.00	
			2003-04	510	13506	57.08	45.7	646335.00	
			2004-05	5492	22217	57.08	45.7	1328772.00	
5		Dh 5	2008-09	1533	34110.5	54.45	39.24	1421968.00	
		KD-3	2011-12	72	9428	54.45	39.24	373875.00	
			2012-13	2731	87296	54.45	39.24	3574198.00	
			1979-80	8788	208848	11.27	9.85	2156174.00	
			1985-86	-	29206	-	22.85	553107.00	
			1986-87	6027	173350	53.2	38.9	7063951.00	
			1987-88	7737	79062	57.08	45.7	4054761.00	

6		Rb-6	1988-89	1101	126358	57.08	45.7	5837405.00	
			1992-93	656	23415	57.08	45.7	1107510.00	
	Shopian		1997-98	109	63143	57.08	45.7	2891856.00	
			1999-2k	1141	33930	57.08	45.7	1615729.00	
			2001-02	214	4300	57.08	45.7	208735.00	K/F 8
				198	140	57.08	45.7	17700.00	Poles Const. of bridge on Nalla Rambiara
			2005-06	3326	35198	57.08	45.7	1798402.00	
7		Rb-7 & 8	1997-98	1456	65747	11.27	9.85	664017.00	
			1980-81	1924	80231	13.54	11.13	919022.00	
8		Rb-7	1997-98	-	7620	-	45.7	348234.00	N. fallen
			1997-98	665	32774	57.08	45.7	1535730.00	Dry stand
			1997-98	5125	63764	57.08	45.7	3206550.00	
9		Rb-8	1997-98	1327	-	57.08	-	75745.00	Additional bill on prev. marking
			1999-2k	5684	12580	57.08	45.7	899348.00	
			2003-04	284	17248	57.08	45.7	804444.00	
			1994-95	1477	26430	57.08	45.7	205092.00	
10		Rb-9	1999-2k	704	15083	57.08	45.7	729744.42	
			2003-04	766	9863	57.08	45.7	494462.00	
			1993-94	7124	69433	57.08	45.7	3581554.00	
11		Rb-12	1996-97	1230	66732	57.08	45.7	3119861.00	
			1999-2k	3891	11922	57.08	45.7	766933.00	
			1996-97	4574	38955	57.08	45.7	2041327.00	
			1997-98	8282	98284	57.08	45.7	4964315.00	
12		Rb-16	1997-98	-	4325	-	45.7	197652.00	Additional bill on prev. marking
			1999-2k	10660	3732	57.08	45.7	779025.00	
			1988-89	14703	50854	57.08	45.7	3164646.00	
	Shopian		1989-90	2536	56702	57.08	45.7	2736036.00	
		D1. 17	1989-90	52944	37747	57.08	45.7	7312481.00	
		Kb-1/	1992-93	13419	28376	57.08	45.7	2065023.00	
13			1996-97	8670	36407	57.08	45.7	2152976.00	
			1997-98	5233	67481	57.08	45.7	3382581.00	Fallen

			1999-2k	8456	6369	57.08	45.7	773731.00	Dry stand
			2001-02	7200	6952	57.08	45.7	728682.00	
			1988-89	9045	3041	57.08	45.7	655262.00	
			1989-90	127297	20150	57.08	45.7	8558275.00	
			1992-93	25592	4049	57.08	45.7	1654970.00	
14		Rb-18	1997-98	26104	9789	57.08	45.7	1937374.00	
			1999-2k	25872	481	57.08	45.7	1498755.00	
			2002-03	16593	8008	57.08	45.7	1313094.00	
		Rb-19 (a)	1983-84	156500	59582	0	0	0.00	Bill not issued
		Rb-19	1986-89	5001	9456	53.2	38.9	633891.00	
15		19 (a)	1999-2k	34695	20418	0	0	0.00	Bill not issued
			1999-2k	29941	9540	0	0	0.00	Bill not issued
		19 (b)	2003-04	9356	6205	0	0	0.00	Bill not issued
16		Rb-20	2009-10	128	-	54.45	-	6970.00	PMGSY
17		Rb-21	2009-10	1546	-	54.45	-	84180.00	PMGSY
			2009-10	392	-	54.45	-	21344.00	PMGSY
18		Rb-22a	2009-10	625	-	54.45	-	34031.00	PMGSY
19		Rb-22b	2009-10	1221	74(Deodar)	54.45	105.32	74277.00	PMGSY
20		V/2 (ab)	1997-98	369	44535	57.08	45.7	2056312.00	
	Shopian		1999-2k	13415	2426	57.08	45.7	876596.00	
			1988-89	49140	190488	57.08	45.7	11510212.00	
			1988-89	3326	31455	57.08	45.7	1627341.00	
21		V/3	1989-90	31376	134898	57.08	45.7	7955780.00	
			1992-93	824	16981	57.08	45.7	823065.00	
			1997-98	2192	161610	57.08	45.7	7510696.00	
			1989-90	23615	37234	57.08	45.7	3049538.00	
			1997-98	959	125880	57.08	45.7	5807456.00	Dry stand
22		V/4 (ab)	1997-98	-	47292	-	45.7	2161472.00	N. fallen
			1999-2k	-	12146	-	45.7	387194.00	
			2003-04	9098	139434	57.08	45.7	6891448.00	

<i>S</i> .	Danas	Committe	Vous of Marking	Vol. n	narked	Lease rate	applied	Dill insued	Remarks
No	Kange		Tear of Marking	Kail	Fir	Kail	Fir	bili issuea	
			1989-90	-	106063	-	45.7	7389079.00	
			1992-93	-	8385	-	45.7	387194.00	
1		V-8	1997-98	594	30411	57.08	45.7	1423688.00	
			1999-2k	59	10964	57.08	45.7	504422.00	
			1989-90	-	30482	-	45.7	1393027.00	
2		V-9	1989-90	2956	313666	57.08	45.7	14481328.00	
			1992-93	482	65942	57.08	45.7	3041062.00	
			1997-98	1137	161470	57.08	45.7	7444078.00	
			1989-90	-	3592	-	45.7	164154.00	
3		V-10	1989-90	189	114489	57.08	45.7	5232137.00	
			1997-98	-	46709	-	45.7	2134601.00	
	<b>X</b> 7 1		1992-93	3147	128119	57.08	45.7	6034601.00	
4	Veshav	V-11	1993-94	6033	110185	57.08	45.7	5379818.00	
			1999-2k	-	21999	-	45.7	1005354.00	
5		V-11(b)	1999-2k	1001	30059	57.08	45.7	0.00	Not handed over
			2002-03	222	25250	57.08	45.7	166624.00	
6		V-12 (a)	1996-97	16049	28177	57.08	45.7	1632957.00	
7		V-12 (b)	1999-2k	2721	9934	57.08	45.7	609298.00	
8		V-13	1996-97	1231	89450	57.08	45.7	4158130.00	
			1999-2k	494	20897	57.08	45.7	983190.00	
9		V-15	1996-97	10038	12921	57.08	45.7	1163449.00	
			1999-2k	6295	24981	57.08	45.7	0.00	Not handed over
			1996-97	173	25338	57.08	45.7	1167821.00	
10		V-16	1997-98	6821	1354	57.08	45.7	372511.00	
			2003-04	886	44981	57.08	45.7	2106205.00	
			2001-02	2065	140781	57.08	45.7	274552.00	
11		V-17	2003-04	332	54092	57.08	45.7	2490955.00	
			2009-10	234	122830.5	54.45	39.24	4832610.00	
			2001-02	3119	87002	57.08	45.7	2077314.00	
12		V-18	2003-04	33325	31110	57.08	45.7	1611518.00	
			2009-10	1401.5	83981	54.45	39.24	3371726.00	

13		V-19	1989-90	4181	256000	57.08	45.7	11937851.00	
			2009-10	5497.25	293135.5	54.45	39.24	11801962.00	
14		V-20	2009-10	1142.5	158028.5	54.45	39.24	6263247.00	
15		V-20 (a)	1993-94	349	48038	44.8	34.25	1660937.00	
			2003-04	7394	90054	57.08	45.7	4537495.00	
			1996-97	1415	43930	57.08	45.7	2087181.00	
			2001-02	1975	31313	57.08	45.7	765801.00	
16	Veshav	V-22	2003-04	3503	53091	57.08	45.7	2626210.00	
			2009-10	2790.5	19680	54.45	39.24	924126.00	
			2001-02	238	27265	57.08	45.7	643574.00	
17		V-21	2003-04	897	32365	57.08	45.7	1530280.00	
			2009-10	161	30970.5	54.45	39.24	1224048.00	
18		V-25(b)	2003-04	6046	-	57.08	-	345108.00	
			2009-10	5754	386.5	54.45	39.24	328471.00	
19		V-26 (a)	1985-86	28449	268186	57.08	45.7	7021913.00	
			1988-89	159915	27661	57.08	45.7	10392005.00	
20		V-26 (b)	1989-90	5666	14919	57.08	45.7	1005213.00	
			2003-04	14606	4808	57.08	45.7	1053436.00	
			2009-10	7342	1635	54.45	39.24	463929.00	
21		V-27	1996-97	2728	56698	57.08	45.7	0.00	Not given at statement
			1999-2k	1965	11991	57.08	45.7	660151.00	
22		V-28(b)	2004-05	13102	-	54.45	-	713404.00	
			2008-09	16226	173	54.45	39.24	890294.00	
23		V-29 (a)	2001-02	13822	11978	57.08	45.7	668395.00	
24		V-29 (a)	2000-01	1705	33567	5708	45.7	815809.00	
	Veshav		2003-04	1568	17754	57.08	45.7	900859.00	
25		V-29 (c)	2000-01	1814	8096	57.08	45.7	4735530.00	
			2003-04	2173	15732	57.08	45.7	842987.00	
			1988-89	416	121138	57.08	45.7	5559751.00	
26		V-31 (b)	1989-90	1578	-	57.08	-	90072.00	
			1992-93	1086	34402	57.08	45.7	1634160.00	
27		V-31	2000-01	888	49544	57.08	45.7	1161538.00	
			2003-04	752	23182	57.08	45.7	1102344.00	

28		V-33	2000-01	-	37984	-	45.7	1735868.00	
29		V-34 (a)	1988-89	-	34618	-	-	0.00	bill not issued
1	D.H.Pora	N-22	1988-89	-	54295	-	-	0.00	bill not issued
S.	Danga	No. of	Fit V	Fit Volume billed for			D:	lla issued	
No.	Kange	Comptts.	Kail	Fir	Deodar	Total	Bills issued		
1	Romshi	30	351219.00	3342442.00	0.00	3693661.00	326	574512.00	
2	Shopian	22	987589.00	3234129.50	74.00	4221792.50	161	986508.00	
3	Veshav	29	426820.75	6065365.50		6492186.25	190	322418.00	
4	D.H.Pora	1	0	54295	0	54295.00		0.00	
	Total	82	1765628.75	12696232.00	74.00	14461934.75	67	8883438.00	
Total Royalty due to SFC								883438.00	
				675	500000.00				
			651	383438.00					

# ANNEXURE XVII

#### Cost Structure of various Planting Models for aforestation in Proposed Working Circles.

### **1. ARTIFICIAL REGENERATION**

### 1A. "Planting with Conifer container plants": -

S.No	Particulars	Туре	Qty	Average Per Hac (Rs)
01.	Protection from biotic interference (Chain link fencing <b>Rs 640/ Rft</b> ,)	Chain link fencing	300 Rft/ Hac (Avg)	192000
02	No. of plants to be planted in pits (size 45cm×45cm×45cm) with unit tariff rate adopted (13.17 / Plant) + Plant production cost of raising No. of plants @ Rs.11.04 / Plant =24.21	Conifer	1650 Nos	39946
03	Maintenance, it includes beating up of casuality @ 24.21 and repair of fencing LS etc.	1st year (25% BUC) 2 <sup>nd</sup> year (15%) 3 <sup>rd</sup> year (5%) Repair of Fencing	412 247 83 LS	9974 5977 2009 <u>10000</u> <b>27960</b>
	Total (A)		259906 S	ay 260000

#### 1B: "Planting with Broad Leaved (naked root plants)":

S.No	Particulars	Туре	Qty	Average Per Hac (Rs)
01.	Protection from biotic interference (Chain link fencing <b>Rs 640/ Rft</b> ,)	Chain link fencing	300 Rft/ Hac (Avg)	192000
02	No. of plants planted to be planted in pits (size $45 \text{cm} \times 45 \text{cm} \times 45 \text{cm}$ ) with unit tariff rate adopted ( <b>Rs.10.56</b> / <b>Plant</b> ) + Plant production cost of raising No. of plants @ <b>Rs3.76</b> / <b>Plant</b> = <b>14.32</b>	Naked Root	1650 Nos	23628
03	Maintenance, it includes beating up of casuality @ 14.32 and repair of fencing LS etc.	1st year (25% BUC) 2 <sup>nd</sup> year (15%) 3 <sup>rd</sup> year (5%) Repair of Fencing	412 247 83 LS	5899 3537 1188 <u>10000</u> <b>20624</b>
	Total (B)		236252 Sa	y 236000
	Average (A+B)		248000 Say	y 250000

# ARTIFICIAL REGENERATION 2A. "<u>Planting with Conifer container plants</u>": -

S.No	Particulars	Туре	Qty	Average Per Hac (Rs)
01	Protection from Biotic interference: Angle iron fencing: Rs. 178/rft	Angle Iron using Barbed wire fencing (6 strands with 02 criss cross using 6.5' angle iron posts)	300 Rft/ Hac (Avg)	53400.00
02	No. of plants to be planted in pits (size 45cm×45cm) with unit tariff rate adopted (13.17 / Plant) + Plant production cost of raising No. of plants @ Rs.11.04 / Plant =24.21	Conifer	1650 Nos	39946
03	Maintenance, it includes beating up of casuality @ 24.21 and repair of fencing LS etc.	1st year (25% BUC) 2 <sup>nd</sup> year (15%) 3 <sup>rd</sup> year (5%) Repair of Fencing	412 247 83 LS	9974 5977 2009 <u>10000</u> <b>27960</b>
	Total (A)		121306 S	ay 120000

# 2B: "Planting with Broad Leaved (naked root plants)":

S.No	Particulars	Туре	Qty	Average Per Hac (Rs)
01	Protection from Biotic interference: Angle iron fencing: Rs. 178/rft	Angle Iron using Barbed wire fencing (6 strands with 02 criss cross using 6.5' angle iron posts)	300 Rft/ Hac (Avg)	53400.00
02	No. of plants planted to be planted in pits (size 45cm×45cm) with unit tariff rate adopted ( <b>Rs.10.56</b> / <b>Plant</b> ) + Plant production cost of raising No. of plants @ <b>Rs3.76</b> / <b>Plant</b> = 14.32	Naked Root	1650 Nos	23628
03	Maintenance, it includes beating up of casuality (a) 14.32 and repair of fencing LS etc.	1st year (25% BUC) 2 <sup>nd</sup> year (15%) 3 <sup>rd</sup> year (5%) Repair of Fencing	412 247 83 LS	5899 3537 1188 <u>10000</u> <b>20624</b>
	Total (B)	•	97652 Sa	y 100000
	Average (A+B)			110000

# **3. ASSISTED NATURAL REGENERATION 3**A. WITH FENCING

S.No	Particulars	Туре	Qty	Average Per Hac(Rs)		
	Protection from Biotic	Angle Iron using Barbed	300 Rft/ Hac	53400.0		
	interference: Angle iron fencing:	wire fencing (6 strands with	(Avg)			
	Rs. 178/rft	02 criss cross using 6.5'				
		angle iron posts)				
02	Sowing of seed of species with	a) conifer patches	825 Nos/ Hac	2764.00		
	unit rate (Rs 3.53/ Dibble and Rs					
	3.35/ Patch)	b) H.C nut dibbles	825 Nos/ Hac	2912.00		
02	No. of plants to be planted in pits	Conifer	400 Nos	9684		
	(size 45cm×45cm) with					
	unit tariff rate adopted (13.1// Plant) + Plant production cost of					
	raising No. of plants $@$ Rs 11 04 /					
	Plant =24.21					
03	Maintenance, it includes beating	1st year (25% BUC)	100	2421		
	up of casuality @ 14.32 and	$2^{nd}$ year (15%)	60	1453		
		$3^{rd}$ year (5%)	20	484		
		Repair of Fencing	LS			
				4358		
	Total (A)	73118 Say 75000				

# **3B: WITHOUT FENCING**

S.No	Particulars	Туре	Qty	Average Per Hac(Rs)
02	Sowing of seed of species with unit rate	a) conifer patches	825 Nos/ Hac	2764.00
	(Rs 3.53/ Dibble and Rs 3.35/ Patch)			
		b) H.C nut dibbles	825 Nos/ Hac	2912.00
02	No. of plants to be planted in pits (size	Conifer	400 Nos	9684
	45cm×45cm×45cm) with unit tariff rate			
	adopted (13.17 / Plant) + Plant			
	production cost of raising No. of plants			
	@ Rs.11.04 / Plant =24.21			
03	Maintenance, it includes beating up of	1st year (25% BUC)	100	2421
	casuality @ 14.32 and	$2^{nd}$ year (15%)	60	1453
		$3^{rd}$ year (5%)	20	484
		Repair of Fencing	LS	
				4358
04	Misc: DRSM, Brushwood fencing in	DRSM, Brushwood	LS	30000
	small patches and other form of fencing	or other form of		
	to cover small areas - LS	fencing		
Total (B)		49718 Say 50000		

# 4. Estimated total cost for various operations to be undertaken in Proposed Working Circles

## Estimated expenditure for Plantation and cultural operations

Rs.	in	Lakhs	

Sl.No.	Working Circle	Area (ha)	Per ha Cost	Total Cost
Ι	Fir Selection Working Circle	265		
IA	20% Annual coupe (265 ha) – ANR with	53	0.75	39.75
	fencing			
IB	20% of Annual coupe (265 ha) – ANR	53	0.50	26.50
	without fencing			
IC	20% of Annual Coupe (265 ha) – Cultural	53	0.20	10.60
	Operations			
II	Rehabilitation Working Circle	200		
IIA	Artificial regeneration with Chainlink fencing	50	2.50	125
IIB	Artificial regeneration with Angle Iron fencing	150	1.10	165
III	Alpine Pasture Management	100	0.50	50
	416.85 Say 417.00			