

Management of Forest Ecology in Nahana Forest Division of Himachal Pradesh

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ABSTRACT

“Forest Management” is defined as “A branch of forestry whose function is the organization of a forest property for management and maintenance, by ordering in time and places the various operations necessary for the conservation, protection and improvement of the forest on the one hand and the controlled exploitation of the forest on the other”. Forest management is planning and implementing practices for better use of forests and other wooded land to meet specific environmental, economic, social and cultural objectives.

The present paper aims to study the management of forest ecology in Nahana Forest Division of Himachal Pradesh. The study area is suitable for study the management of forest ecology and elevation from 335m. to 1550 meters and forest area is 32,574.44 hectares. There are several problems related to forest management.

Both primary and secondary data on different aspects related to management of forest ecology has been used in the present study. Primary observation related to forest management like, Joint Forest Management, Social Cooperation has been observed in the study area. Secondary data has been collected from Nahana Forest Division and Department of Forest, Himachal Pradesh.

1. Introduction

Management is an art as well as science. As an art it requires skill, talent and intelligence, on the part of the manager. As a science it is amenable for experimentation, innovations, research, application of various methods, arriving at scientific conclusions and adoption of such conclusions in identical spheres and situations.

“Forest Management” is defined as “that branch of forestry whose function is the organization of a forest property for management and maintenance, by ordering in time and places the various operations necessary for the conservation, protection and improvement of the forest on the one hand and the controlled exploitation of the forest on the other”. Forest management is planning and implementing practices for better use of forests and other wooded land to meet specific environmental, economic, social and cultural objectives. It deals with the overall administrative, economic, legal, social, technical and scientific aspects related to natural and planted forests. It may involve varying degrees of deliberate human intervention, ranging from actions aimed at safeguarding and maintaining forest ecosystems and their functions, to those favoring specific socially or economically valuable species or groups of species for the improved production of forest goods and services.

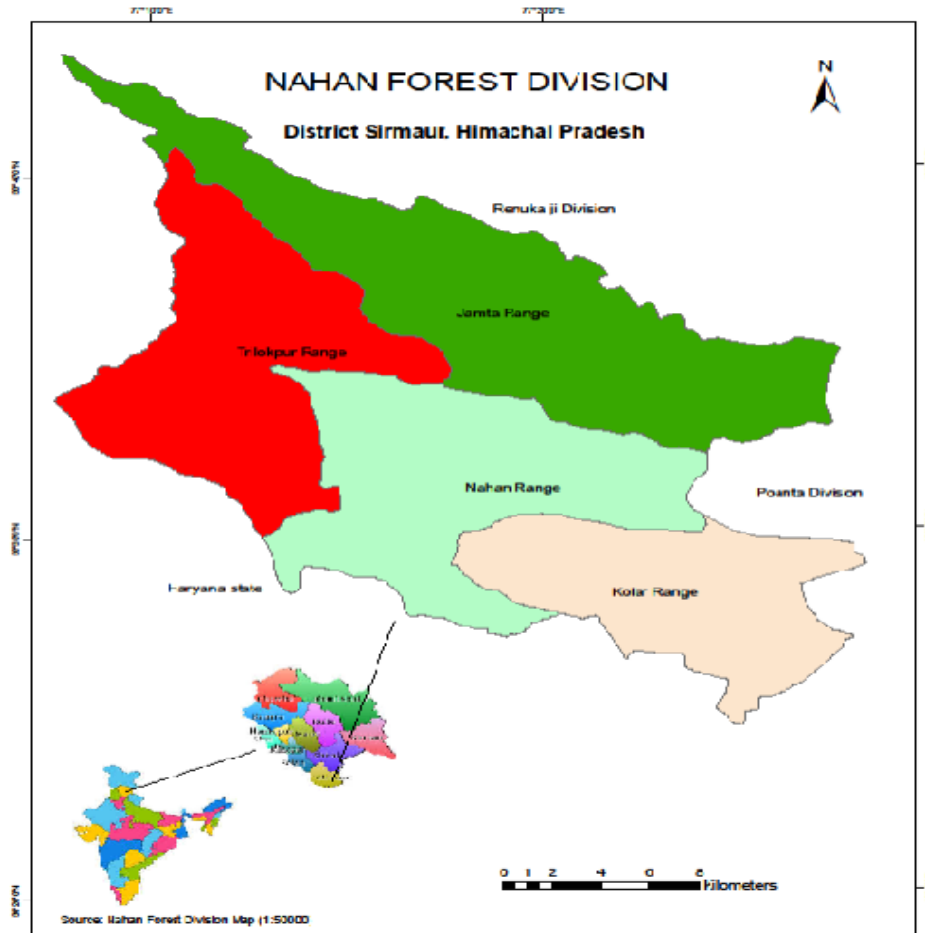
Forest Management system is different in different countries. Americans have taken only the productive function of the forests as the basis of management. Moreover, there are the major portion of the forests is under the control of private individuals, their policy guides both the private and public forest owners whose main aim is the maximum amount of profit. Here in India, the position is entirely different in that the major portion of the forests is under the Government control and the Government has got the dual responsibilities of economic and social welfare. With the even increasing anthropogenic pressure and archaic managing institution, the life support system of the earth has been bearing distress

signals in the form of continued natural resource degradation leading to depletion of forests cover. Therefore, forest management institute open in the world and India. India has a long history of systematic forest management from Harappa civilization to till now a day.

2. Study area

The Nahana forest division is located in district Sirmaur, Himachal Pradesh. The total geographical area of the division is 52,439.48 hectares but total forest area of the division is 32,574.44 hectares. The latitudinal extend of the Nahana Forest Division is 30°22'19" to 30°41'36" north latitude and 77°7'19" to 77°49'48" east longitude. The elevation is varying from 335 meters at Kala-amb to 1550 meters in Jamta Range above sea level. The division has boundaries with Rajgarh and Renukajiforest division in the north, Paonta Sahib forest division in the east and the state of Haryana in the south and west direction.

The divisional headquarter is located at Nahana, situated on the outermost Shiwalik ridge at an altitude of about 900 meters. The division has four ranges Nahana Range, Trilokpur Range, Kolar Range, Jamta Range and 323 villages. These four ranges are divided into 14 blocks and these blocks are further divided into 74 beats. Jamta range lies in the northern part of the forest division which make northern boundary with Jalal river. The total forest area of the Jamta range is 7065 hectares which divided into 3 blocks and 15 beats. The Trilokpur range lies in the west of the forest division. The total forest area of this range is 8527 hectares which divided into 3 blocks and 15 beats. The Kolar range lies in the south-east of the forest division. The total forest area of this range is 8002.59 hectares which divided into 4 blocks and 20 beats. The Nahana range lies between Trilokpur range in the west and kolar range in the east. The total area of this range is 8979.85 hectares which divided into 4 blocks and 24 beats. The entire forest division is a part of Himalayan and Sub-Himalayan. The large area comes under Shiwalik Hills.



Source:- From Nahans Forest Division

3. Objective

The present paper is an effort to introduce the different methods, working plans and other activities are running in study area for management of forest ecology.

4. Methodology

The proposed work shall find out the possible ways and means by which the rules, regulations, plans and policies formulated by different government bodies can be executed effectively. Both primary and secondary data on different aspects related to management of forest ecology has been used in the present study. Primary observation related to forest management like, Joint Forest Management, Social Cooperation has been observed in the study area. Secondary data has been collected from Nahans Forest Division and Department of Forest, Himachal Pradesh.

5. Evolution of the Management of Forest Ecology in Nahans Forest Division

There are no authentic records of forest management in early time but in Nahans Forest Division first step to manage the forests on some scientific principles was taken by Maharaja Sir Shamsher Parkash who introduced in 1890 the rawana system to control the felling and extraction of trees. He also took steps to demarcate and declared the forest as Reserved Forest under Indian Forest Act. During this period, Forest Settlement and Revenue Settlement were also carried out.

The Forest Settlement was termed 'Faisla-e-Janglat'. No rights were admitted to the local people but numerous concessions were allowed. Practically nothing was done in the direction of regeneration the forests. The main emphasis was on controlling the felling and selected the good quality trees species for revenue purpose.

a) Chintamani Joshi, R. Bhattacharya Working Plan (1895-1915):

It was the first working plan in the study area. This working plan was prepared for twenty years. The working plan did not provide any silvicultural system but only systematized the extraction of trees and some record regarding the fellings. The result of these felling was that selected trees of commercial important species like sal, sain, haldu, shisham, khair, chil etc. were felled. Large scale fellings were carried out in easily accessible areas with the result regeneration came up naturally. The overall result of working in sal forests were depletion of bigger diameter trees and neglect of young trees. No silvicultural operations were done in miscellaneous scrub forests. No working was done in bamboo forests. The shifting cultivation made offensive due to this the natural regeneration occurred in chil forests. During the years 1916-1932 were no regular working plan.

b) Sewal's Working Plan (1933-34 to 1952-53):

Maharaja Amar Parkash invited Mr. F.W. Parrie the President of Forest Research Institute, Dehradun to inspect

the forests of Sirmour State. He visited these forests in 1927 and gave the name of plan for future management. The major difficulties of this plan were encroachments, grazing and lopping by local people. To achieve the objects of management the area divided into some working circles like; the sal conversion circle, the bamboo working circle, the chil working circle and the miscellaneous working circle. Under the sal conversion circle all pure sal took under the silvicultural system. The silvicultural system adopted was conversion to uniform under shelterwood with natural regeneration. The sal area divided into four periodic blocks (P.B). Most of the area allotted to P.B.I for regeneration. The growing stock above 30 cm. dbh was numbered. All dead, dying, unsound and mature trees over 60 cm. dbh were removed. After that all areas were to be closed to grazing for ten years and twenty-five years for regeneration.

During this period bamboo was growing in a much bigger area than it is growing now. Bamboo was to be worked on four years felling cycle. There were prohibited to uprooting of rhizome and cutting of one-year old clumps. The overlapping miscellaneous species were to be lopped to help regeneration of bamboo. There were given some suggestion like; exclusion of Gujjar grazing and control over the grazing of state elephant. The result of this working cycle was that no rule followed by local people and contractor and the bamboo area degraded.

More than fifty percent of the total area covered under Sewal's Working Plan was allotted to Miscellaneous Working Circle. Selection-cum-improvement fellings were arranged with a view to meet local demands and improve the existing crop. There was no tree to be marked for felling unless its removal benefited the existing crop. The Gujjars grazing was to be excluded near Nahan town.

c) Sharma and Tikku's Working Plan (1953-54 to 1962-63):

In this working plan the objects of management were set the same as envisaged in Sewal's Plan. To achieve the objects of management working circle divided into five small circle like; the sal conversion working circle, the selection working circle, the protection working circle, the plantation working circle and the bamboo working circle. In this working plan for sal trees adopted the same (silvicultural system, rotation and regeneration period) as last plan. In this working plan chil area were prescribed with a view to improve the existing growing stock. A felling cycle of ten years was prescribed. Exploitable diameter for sal and sain were 45 cm. dbh for better quality and 40 cm. dbh for poor quality area, chhal 40 cm. dbh, chil 60 cm. dbh and 40 cm. dbh for other species. Mature groups of sal were to be opened for regeneration. Such areas were to be closed to grazing. Bhabar planting was also to be done during this plan. Bamboo bearing forests of Nahan Range which could be profitably exploited for bamboo extraction were allotted to this working plan. In the bamboo area four year felling cycle was prescribed and one fourth of the total area was to be felled annually. Bamboo parks were established.

d) Arya's Working Plan (April 1968 to March 1978)

Shri S.R. Arya revised the working plan for Nahan Forest Division and his working plan was for a period of ten years. The general objects of management were:

- To preserve and improve the vegetation cover all over especially on the Siwalik and there by check soil erosion and conserve the moisture.
- To cover the blank sides with tree cover and replace the inferior miscellaneous patches with suitable and more economic plantations preferably by fast growing pulp wood species.
- To arrest erosion by afforestation and other soil conservation measures.
- To meet the legitimate and bonafide requirements of the local population; of timber, fuelwood, grazing, fodder and other forest produce and fuel requirement of Nahan.
- To attain, as far as practicable, normal forest and normal regeneration I due course of time.
- Consistent with the above, to obtain maximum annual yield in perpetuity, of various forests products timber fuelwood, bhabhar grass and bamboo etc.

During this plan to achieved goal a number of decisions taken by forest department. The working plan divide in five working circles like; sal conversion working circle, the selection working circle, the protection working circle, the planting working circle and the bamboo working circle. The sal conversion working circle divided into five periodic blocks (P.B's.). Exploitable diameter for sal, sain, shisham was fixed at 40 cm. dbh and that for chil as 60 cm. dbh, for khair 30 cm. dbh and for other species as 40 cm. dbh. In this plan 3514 hectares area was taken under plantations in different forests. Annual target of 50 hectares planting was fixed. Resin tapping continued in pre- dominantly chil forests. The total 3,63,076 blazes tapped during this plan by old method. The general standard of resin tapping deteriorated and over- sized blazes was made than prescribed. During the working plan roads, forest check post, quarters, forest guard huts, library room, seeds stores were constructed.

e) B.S. Chauhan's Plan (1982-92):

This plan was for a period of ten years. The working plan divided into six working circle like; sal conversion working circle, coppice working circle, chir working circle, protection-cum-afforestation working circle, eucalyptus working circle and bamboo working circle. Under the protection-cum-afforestation working circle in Trilokpur, Nahan and Kolar ranges miscellaneous broad leaves/khair trees were felled in a very bad shape. The felling areas were not fenced properly. Although, there were no regeneration could come up due to heavy grazing. In sal conversion working circle silvicultural system adopted and divided in five periodic blocks. The main object of constituting this working was to covert the existing irregular crop into more or less uniform crop. The yield of sal was calculated on the basis of Von Montel's, Howards and Hufnagles formula by use the growing stock figures of entire working circle. In these working plan chil areas of Nahan and Paonta Sahib was included. The forests contained good quality chil with poor stocking. The main object of chil working circle was to improve the stocking of existing forests. Bi-Annual planting program in blank places were suggested. Resin tapping used accordance the Punjab Circular no. thirteen.

f) Vineet's Working Plan (1998-99 to 2012-13):

This plan was for a period of fifteen years and divided into seven working circle like; sal working circle, coppice working circle, chir working circle, protection-cum-rehabilitation working circle, eucalyptus working circle, bamboo working circle and khair working circle. The general objectives of management, therefore, were:

- To improve the growing stock qualitatively and as well as quantitatively.
- To harvest the valuable forests of sal, chil, khair, eucalyptus, bamboo and miscellaneous species on the principle of sustainable and regeneration.
- To increase forest cover by covering the blank areas with site specific tree cover and to increase proportion of indigenous economic species.
- To bring established plantations under scientific management.
- To meet the bonafide demand of local people of timber, fuelwood, grazing, fodder etc.
- To supplement availability of raw material for forest based local industries of resin, katha, timber etc.
- To check soil erosion in the hills and prevent denudation of forests.
- To check the environmental degradation and to strike the right ecological balances between man and flora and fauna.
- To check the forest offences particularly illicit felling and encroach.

6. Joint Forest Management (JFM)

Joint forest management is concept of developing relationships between local people and forest department on the basis of mutual trust and jointly defined roles and responsibilities for forest protection and development. Joint Forest Management is a national program through which

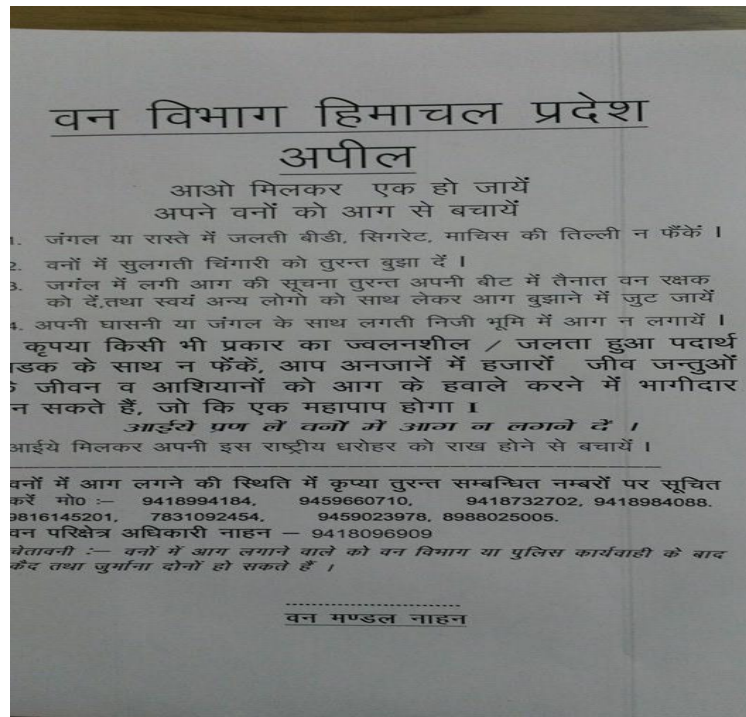
communities have been involved in forest management since the 1990s. Although initially JFM was supported through projects and initiatives of individual officers and NGOs, it was subsequently institutionalized through the National Afforestation Programmer (NAP), a flagship scheme of the National Afforestation and Eco-Development Board. Under NAP, a three-tier institutional structure has been developed with JFMCs or Eco-development Committees (EDCs) at the village level, Forest Development Agencies (FDAs), which are federations of the JFMCs, at the Territorial Forest/Wildlife Division level, and State Forest Development Agencies (SFDAs), which are federations of FDAs, at the state level. Himachal Pradesh state government issued the first JFM Notification in 1993 for constitution of Village Forest Development Committees (VFDCs). In the year 2002-03 onwards - JFMCs were constituted and federated into FDAs at the Forest Division level with support from NAP. The JFMCs are registered with HPFD as per the provisions of the NAP guidelines, whereas FDAs are registered as Societies. The SFDA was constituted in 2010 in accordance with the central guidelines.

7. Forest Fire

Forest fires were found to be the most frequent phenomenon during the interviews with the respondents in sample villages. Almost all respondents in all villages selected for the study agreed that the forest fires take place almost every year. The respondents also agreed that they inform the department of the fires in the forest and actively help the Forest Department officials in extinguishing the fire. Forest department also build small tanks/ ponds in the forest area to extinguishing the fire and irrigation to the new plants. The major source of water in pond is rainfall. Some public awareness message spread through poster and notice by department.



Source:- Water pit from study area



Source:- Public awareness message to stop fire incidents

8. Suggestions

- The Bore Hole method is more applicable to protect tree from pest, fire, insect and disease. Through borehole method high quality resin and turpentine oil produce without sakkhi which has big price in market.
- Lip and Cup method should be removed totally.
- To control fire there should be creation and maintenances of fire line; Forest Department should clear the needles Forest Department should clear the needles of pine trees from forest on regular basis; awareness generation programmes in local people; create master control room; wireless communication network; deployment of fire watchers; involvement of

local communities; Beating of fire with bushes and use of water pit to control the fire; use of Remote Sensing technology and moderate resolution imagine Spectro-radiometer (MODIS) satellite data detection of active forest fires.

- To control fire there should be forest fire mapping and modeling for predication and early warning; capacity enhancement through organizing trainings and workshops; the agencies like NDRF should be deployed in fighting forest fires area. State Governments should be trained their fire brigade staff to fight forest fires as they will be in a better position to deal with it.

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