

50 YEARS OF FORESTS AND FORESTRY IN INDIA AFTER INDEPENDENCE

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Introduction

India is among the 12 'Mega-diversity' countries of the world, and reflects possibly the entire spectrum of eco-climatic zones - from cold deserts to dense tropical forests. The forests of India cover about 23% of the total geographical area of the country. The recorded forest area in India is 77.01 million hectares, which constitutes 2% of the total forest area of the world today, but supports over 15% of the world's population.

Forests have played a vital role in the socio-economic development of the country in their productive, protective and bio-aesthetic aspects. Forests in India - and some tree species in particular - have played a unique role in the cultural and religious life of the country. Down the ages, be it the epics like the *Ramayana* or the era of great kings like Ashoka, the vital role of the forests has been recognised in their ecological, cultural, commercial and aesthetic aspects. Forests have traditionally been a source of a multitude of products which have sustained large masses of population as well have been a major source of energy (firewood). Unfortunately, over the ages, the forests of India came to reflect the state of country too - a gradual decline due to upheavals caused by foreign invasions, natural calamities, unabated over-exploitation. Serious efforts began only in the middle of the previous century to gain an in-depth knowledge of the extent, state

and composition of the country's forest wealth, as realisation began dawning that forests were not an inexhaustible resource.

Historical Perspective

At the time of Independence in 1947, various sectors of the newly independent India were in different stages of development. Fortunately, the forestry sector was relatively well-organised, having benefitted from British attempts at scientific forestry dating back to 1861. The pioneering work of devoted visionaries like Brandis, and later Schlich and Ribbentrop, among a host of others, began the process of putting India's forests back to a sustainable level. (India is one of the few countries in the world which had a forest policy since 1894.) The state of the country's forests reflected the colonial set-up - parts of the country being directly under Central administration, and large parts under the princely States. Some of the large states like Travancore, Mysore, Hyderabad and J&K had reasonably well organised forest departments; in others like Bhopal and states in Central and Eastern India, state agencies had benefitted by advice from trained forest officers from neighbouring provinces of British India and their forests were in a reasonable state of maintenance. But the forests of the other princely states has served mainly as sources of revenue and no measure of forest conservancy had been practiced in them (Anon., 1961).

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The great historical banyan tree at Namisharnaya, Distt. Sitapur (U.P.)

Thus, among Independent India's first priorities in the forestry sector was the evolution and enunciation of a comprehensive and holistic forest policy that would cover the whole country and work on common, sound principles of forest management and conservation. To this end, in 1952, the Government of India enunciated a new National Forest Policy

especially with regards to the protective functions of forests.

This Forest Policy was drafted with the backdrop of evolving thought in the period 1950-52, when efforts began to adopt a National Festival of Tree Planting (Vana Mahotsava); to devise measures for wildlife conservation, and to promote soil



Natural Sal Stand

conservation on an all-India footing.

As a result of new legislation affecting the land tenure systems (Zamindari Abolition Acts) in different States, large areas of forests came also vest in the Forest Departments. Most of these were in a very derelict or over-worked condition and their rehabilitation presented a new challenge for the Forest Departments. Therefore, extensive programme of forest development had to be planned, and increased regenerative planting activities became the order of the day. The post war (WW II) development schemes were integrated into the first National Plan of Development which commenced in 1951, laying a major thrust on regeneration and afforestation measures.

Another major change took place in 1956, after the accession of the Princely states into the Union of India, when the country's provinces were re-organised on a linguistic basis and 14 different States came

into being. This naturally resulted in considerable re-alignment of forest area and administration also, necessitating major administrative and professional cadre overhauls. Since then, with the administrative order more or less on an even keel, organised efforts began in real earnest.

Forestry under the Five-Year Plans

India adopted the Centrally Planned Economy model of development, with the successive Five Year Plans laying down the priority areas in each major sector. Forestry too came to have laid down thrust areas in each Plan, generally reflecting both the achieved state of development at that point in time as well as new thoughts and concepts that came to be evolved in the country as well as in the world. The First Five Year Plan laid most emphasis on the agriculture and food grain sector, reflecting the urgent priority of generating self-sufficiency in food. The formulation of the



A Deodar stand at Kanasar, Chakrata (U.P.)

National Forest Policy in 1952 saw emphasis being laid upon improving the forest administration by area studies, working plans and by launching a programme of general afforestation. The Second and Third Five Year Plans' forestry aims reflected the general thrust towards industrialisation launched by the country. Thus, plantation activities got a boost in order to provide more timber for industrial consumption, as well as to regenerate degraded areas and as measures in soil conservation and rehabilitation of wastelands.

This period also saw the growth of Farm Forestry and a thrust towards Extension. The introduction of fast growing species with a view to bridging the gap

between demand and supply of pulpwood and other industrial use timber was given a greater thrust. The Fourth and Fifth Five Year Plan periods saw a more comprehensive conceptual framework evolve - with thrust on the ecological aspects, wildlife and protected area conservation, with the emergence of the concept of biosphere reserve conservation and protection gaining a major fillip.

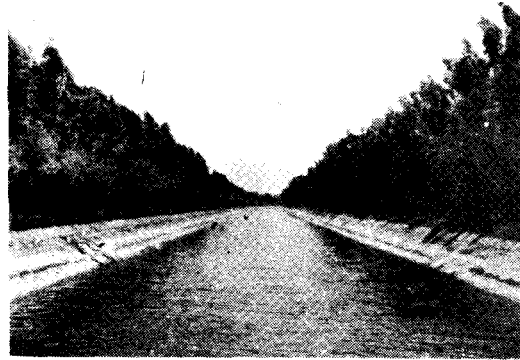
The broad objectives of forestry continued in the subsequent plan periods also. The Fifth and Sixth Five Year Plans added Social Forestry as a policy objective, thus aiding the plantation activity outside RF areas - both as a measure of re-greening with its ecological-ameliorative objectives as also to raise further forest resources to meet the growing industrial demand. A major discernible trend during this phase was the thrust towards environmental conservation.

The Seventh Five Year Plan (1985-90), while continuing with the broad objectives of the earlier Plan, laid emphasis on the role of tribals in forests and sought to both empower people residing in forests and those wholly dependent upon them as well as to cement a mutually beneficial relationship between forests and forest-dwellers/dependents.

Major legislative changes took place during this period - the enactment of the Forests (Conservation) Act, 1980 in order to check diversion of forest lands/deforestation (later amended in 1988 to incorporate more stringent provisions for violations); as well as the placing of forests on the Concurrent list of the Constitution of India, thereby ensuring control of the Central Government to check diversion of forest lands.



Railside plantation



Canalside plantation



Roadside plantation

The Environment (Protection) Act, 1986 was enacted to tackle major environmental issues related to atmospheric and water pollution and the increasing concentration of carbon dioxide in the atmosphere.

The National Forest Policy, 1988 recommended the approaches for greening the country as adoption of massive need-based and time bound programme of afforestation and tree planting, planting of trees along with roadside, canal side, railway track side, raising of green belt in urban/industrial areas, development of village and community lands and encouraging of agroforestry and farm forestry for increasing biomass production and tree cover area (Tewari, 1991).

Most of these provisions stemmed from the Report of the National Commission on Agriculture (1976) which took a holistic view of the food situation by restoring emphasis on forests, recognising their vital place in the ecological cycle.

In 1985 the National Wastelands Development Board was established to undertake massive afforestation through people's participation to bridge the

staggering gap between demand and availability of fuelwood and fodder and to speedily restore ecologically, our degraded lands (Rego, 1985).

The decade from 1985 to 1995 was also marked by an upsurge of political debate on forestry sector and saw the launching in 1985 of the Tropical Forestry Action Plan (TFAP) with the aim to "Save the World's Tropical Forests for benefit of all mankind".

The Eighth Five Year Plan (1992-97) added bio-diversity conservation as a major objective, retaining the earlier thrust towards involving the people in the protection of forests and sharing with them the usufructs of their efforts, thus benefitting both the local people as well as the country at large by conserving forest wealth.

Thus, the Five Year Plans have served the cause of forestry and forest conservation by laying down and pursuing broad objectives which have across the board relevance throughout the country. Besides, special schemes and programmes have been put in place from time to time in specific geographical as well as generic areas, which have had a major impact. Some of these are discussed in the succeeding paras.

Some major milestones over the previous 50 years

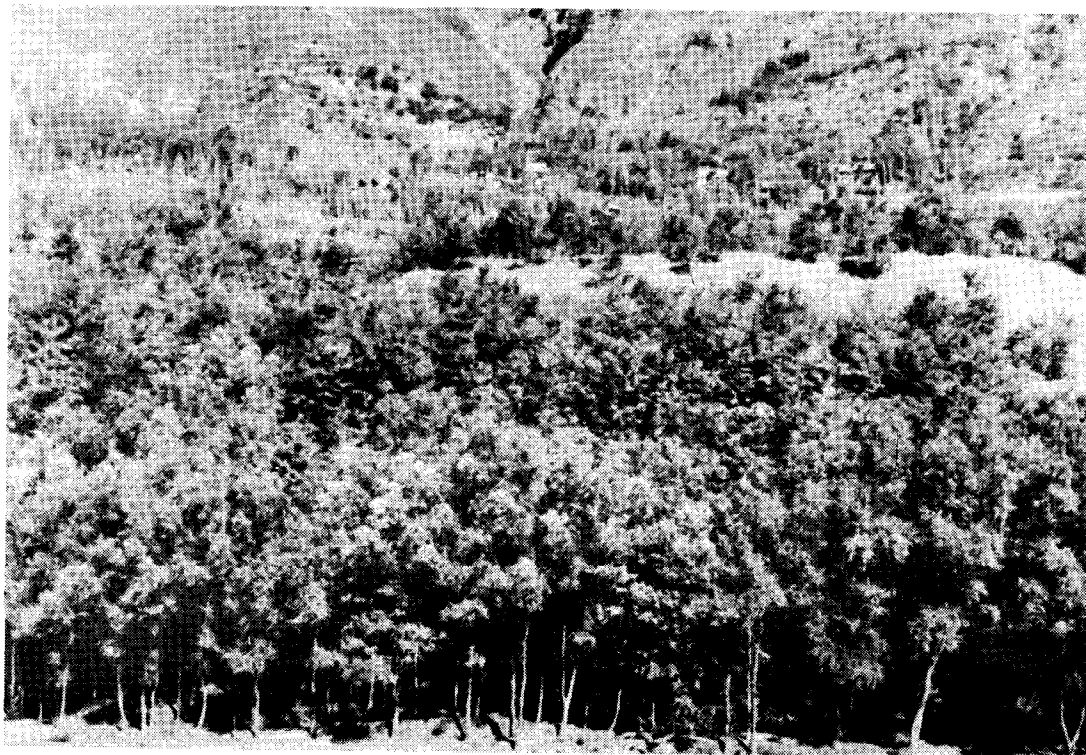
As the foregoing analysis suggests, the strategy for forestry and forest development has been predicated on two different priorities - both converging to achieve the objective of re-greening the nation in order to achieve the goal of having one-third of the country's area under green cover. The two priorities have been (i) Production

forestry : to meet the demands of domestic industry that is based upon wood and wood products as raw materials on a sustainable basis; and (ii) Social or People-oriented forestry programmes to meet the demands for fodder, fuelwood, small timber and non-wood forest produce (NWFP). This latter priority is geared towards meeting rural/tribal demand for these products as well as to meet larger social objectives like providing employment and improving the quality of life of the people dependent upon forests. To this end, the last 50 years have seen the evolution of sustained thought towards evolving people-oriented programmes. Some of the major milestones in the last 50 years are described below.

Farm Forestry and Agro-forestry :

'Farm forestry' was launched in the late 1970s. Farm forestry targets were kept modest and attention was focussed more on planting by Government on village lands (Saxena, 1996). To improve the biological productivity as well as the economic return of the same piece of land, the different formats of farm forestry include peripheral planting on field boundaries and block plantation along with usual agricultural practices being adopted.

The Agro-forestry research in India was initiated during the sixties by F.R.I., Dehra Dun and State Forest Departments, mainly to develop potential technologies in areas like shifting cultivation, taungya system, agri-silviculture and tree farming. During the seventies, research activities further expanded to study precisely various factors. Programme for research and introduction of Poplars was started by F.R.I. in 1968 (Khanna *et al.*, 1996). The major objective of Agroforestry is to optimise



Social Forestry plantation of Willows on the bank of River Jhelum, J.V. Forest, Divn. J&K

production and economic returns per unit area, while respecting the principle of sustainable development.

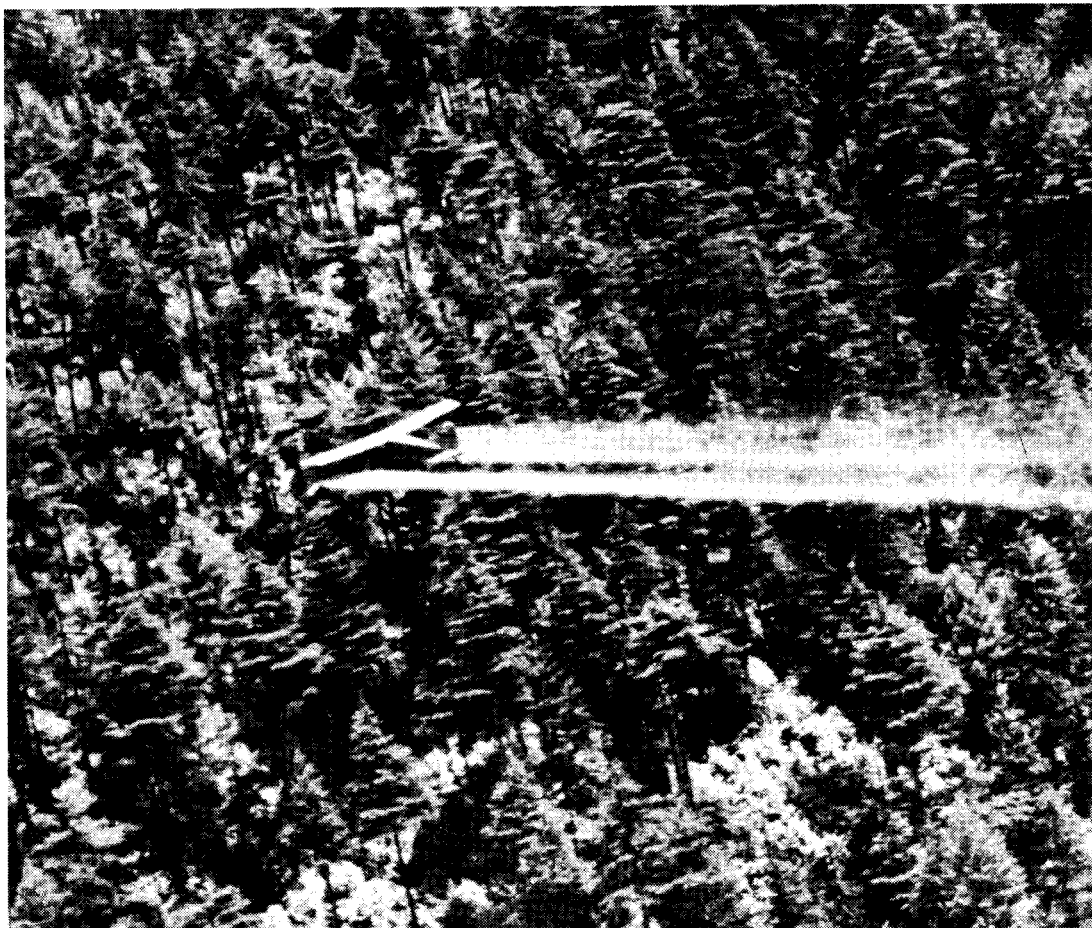
Social Forestry :

The National Commission on Agriculture (1976) recommended the incorporation of the social objectives by suggesting that State Forest Departments be bifurcated into two wings, one handling the 'traditional' forestry activities and the other the 'social' forestry programmes. The NCA spelt out the objectives of social forestry as fuelwood, small timber, fodder supply, protection of agricultural fields, and recreational. A major step forward was taken in 1978 when the Govt. of India and the World Bank (with assistance from the FAO of the UN) agreed to collaborate in

giving a quantum boost to social forestry activities by launching World Bank aided Social Forestry Schemes. The first two States covered under this were Uttar Pradesh and Gujarat. Since then, Social Forestry Programmes have been launched throughout the country, in many cases transforming the face of rural areas.

Urban Forestry :

The unprecedented increase in the pace of urban development has significantly affected man's relationship with trees and forests. The trees have a significant impact in the urban areas too. Urban forestry has developed as a specialised branch of forestry that has as its objective, cultivation and management of trees in the urban environment. Trees provide a host of



Aerial spray of pesticides over coniferous forest

climate buffering services. Trees and green spaces play an important role in improving living conditions in cities. While urban forestry as a science is in an early stage of development, the ICFRE has initiated researches to develop a new and practical understanding of trees and ecology for better urban environments.

Joint Forest Management :

The National Forest Policy, 1988 called for discontinuation of commercial exploitation of forests for industries and for

their maintenance for conservation of soil and environment and to meet the subsistence requirements of local people. Side by side, a call was also given to devise ways of effectively involving people in forest management, a paradigm shift from the earlier approach of forest protection which was more or less a 'policing' function.

In pursuance of the National Forest Policy, the Govt. of India issued guidelines in June, 1990 to the States to adopt Joint Forest Management. JFM is thus a programme essentially to induct villagers

formally into the forest management system, and to make the production system more responsive to community needs, thereby ensuring sustenance of the resource. A need for efficient forest protection by the people for wider ecological consideration and local sustenance is the genesis of the programme.

Preservation Plots :

As far back as 1961, the Tenth All-India Silvicultural Conference discussed the subject of preservation plots at a great length and recommended that suitable instructions regarding preservation plots be incorporated in the Research Code. The F.R.I. executed a scheme on forest productivity during the Fifth Five Year Plan under which a survey of all the existing preservation plots and selected nature reserves was conducted to compile data for comparison and to determine further areas for preservation. The matter was actively pursued with the State Forest Departments (Ghosh and Kaul, 1977).

Silvicultural research in India is mainly guided by the recommendations of the periodic Silviculture Conferences. The Eighth Silviculture Conference was held in 1951 the first to be held after independence, covered a wide field of subjects and several valuable recommendations were made (Anon., 1961). Many study tours and symposia have been held.

Conservation :

In view of the importance of nature reserves for scientific studies and conservation of environment, their establishment is receiving attention both at International and National levels. UNESCO, under their MAB programme

appointed a task force to report on the criteria and guidelines for choice and establishment of biosphere reserves (Anon., 1974). This matter received attention of Govt. of India at the highest level, as well as by the State Forest Departments. It was proposed that 2 to 3% of the total forest area in various regions of the country be declared as nature reserve to cover important ecological types and natural habitats of flora and fauna.

The National Conservation Strategy 1992 outlines the Policy action required to give greater attention to biodiversity. The National Forest Policy, 1988, stresses the sustainable use of forests and on the need for greater attention to ecologically fragile and biologically rich areas (Mehrotra and Kushalappa, 1994).

Wildlife

Wildlife is an integral part of the forests. There is a great abundance and variety of wildlife in the country, but due to clearance of forests, reclamation of swamps, indiscriminate shooting and trapping outside reserves, forest fires and poaching, the wildlife species are depleting at an alarming rate.

The Wildlife (Protection) Act was enacted in 1972. It governs wildlife conservation and protection of endangered species. This Act paved the way for a country-wide programme of wildlife conservation, setting in place National Parks and Sanctuaries and saw the commissioning of several Centrally-sponsored schemes, prominent among them 'Project Tiger' (covering 18 reserves in 13 States). The successful experience with this project led to 'Project Elephant' with a view

to protect the Elephant from extinction. Along with these schemes came emphasis on the eco-development of buffer zones of sanctuaries and reserves, focussing primarily on the problems of the people residing in the periphery of protected areas.

The Indian Board for Wildlife keeps a watch on the status of the wildlife and advises the States for conservation of wild animals and birds. Some of the wildlife species have become rare, some are at threshold of extinction. India is a signatory to the Convention on International Trade in Endangered Species (CITES) of wild flora and fauna, under which the export or import of endangered species or their products is subject to strict control.

The establishment of the Wildlife Institute of India (WII) in 1982 at Dehra Dun is also a recognition of the need to pursue (1) training of wildlife managers and biologists; (2) training education and extension specialists; (3) providing orientation courses; (4) conducting and coordinating applied wildlife research; (5) creating a database for building a wildlife information system, and (6) providing advisory services.

Forestry Education

The Forest Education Organisation has seen considerable expansion since independence. Forestry education in the country has a long and chequered past. Pioneering institutions were set up in Dehra Dun in the previous century, culminating in the formation of the FRI in 1906. Post-1947, seeing the considerable increase in the areas of responsibility of the professional foresters, forestry education was taken up as a priority area. The Indian Forest College which was opened at Dehra

Dun in 1940 and Northern Forest Rangers College, Dehra Dun were expanded considerably. The Coimbatore Forest Rangers College, which the Government took over in 1948, was also expanded and renamed Southern Forest Rangers College. Most States have established regular training schools for courses for their forest guards also.

The Forest Research Institute and Colleges imparted education and training through its various colleges located in different places in the country. The Indian Forest College at Dehra Dun which was primarily meant for training of I.F.S. Probationers was delinked from the FRI with effect from 9-6-1987 and renamed as the Indira Gandhi National Forest Academy, directly under the control of the Govt. of India.

Forest Research Institute :

The Forest Research Institute and Colleges, Dehra Dun has been a premier institute for forestry research, education and training in India. Over the years, the FRI has done pioneering research in clonal multiplication of promising phenotypes/genotypes of many important species. Juvenile shoot production was stimulated by "pinning down" and "hedging" techniques for use as vegetative propagules; methods for mass clonal multiplication by nodal segment culture have been developed, seed stands identified, plus tree orchards have been established and studies on survival and vegetation dynamics to restore lime-stone mine spoil degraded sites. VAM and Rhizobium were screened for their association with seedlings of tree species; protection measures against insect pests and diseases were conducted; utilization of juvenile timbers of different species

harvested from short rotation, lesser known species were also tested for various commercial end uses. Environmental-friendly bleaching process, bio-pulping and chemical modification of spent liquor for manufacturing industrial chemicals has been carried out; wood, bark, leaves, fruits, seed etc. have been investigated for chemicals, oils, gums etc. Tapping of pine trees was investigated and the "Rill" method was evolved to replace the "Cup and Lip" method. A new method "Bore hole resin tapping" is under experiment and is giving encouraging result.

A further phase of expansion took place in respect of forestry research at the FRI & Colleges. The facilities for research have been greatly enlarged, and new fields of study have been installed. The FRI has since been recognised as an International Centre for forestry research.

On the recommendation of the F.A.O. Logging experts a Logging Branch at FRI & Colleges, Dehra Dun was established in June, 1957 and conducted basic logging and mechanised logging. In the interest of better utilization of national timber resource and their extraction at economic cost, a very good beginning has thus been made for promoting the efficiency of timber harvesting operations in the country.

The Indian Council for Forestry Research & Education (ICFRE) :

In order to initiate action towards sustainable forest development, the ICFRE was created in December, 1986 which became autonomous in 1991. The present situation calls for urgent and consistent action for conserving and sustaining forest resources. The priority areas have been identified as (1) Productivity, (2)

Management, (3) Utilization and (4) Policy and Social Economics with the view to conserve the forest resources and optimise their use for sustainable development (Tewari, 1994).

Forest Survey

The need for classified information on forest resources was realised and led to the creation of the Pre-Investment Survey of Forest Resources (PISFR) in 1965 as a joint venture of the Govt. of India and the UNDP. It was replaced by the Forest Survey of India (FSI) in 1981. The FSI has made valuable contributions in respect of assessment of growing stock, volume estimation and annual increment in the forest through field inventories, using satellite and thematic mapping.

Forest Corporations

The NCA in their Interim Report of 1972 on "Production Forestry", called for the establishment of Forest Development Corporations in order to put the management of economically important forest areas under the discipline or corporate sector and to provide employment opportunities to the tribal and rural people living below the poverty line.

The Forest Corporations so established in various States and UTs are engaged in a host of forestry development/business activities ranging from forests harvesting, forest based industries, trading in various forest produce to raising plantations of economically important species and finally greening the wastelands. These public enterprises, being run on sound commercial basis, have injected a fresh hope in the undeveloped and under developed tracts of the country for further development, thus

rendering a great service towards the socio-economic development of the country (Khullar, 1991).

Forest Legislation

In pursuance of the recommendations in 1952 of the National Forestry Policy, some of the States enacted their own full scale forest acts and some extended the provisions of the Indian Forest Act to their territories (Tiwari, 1985).

In 1962 the Central Board of Forestry (CBF) recommended that the suggestions for improvement and changes in the Indian Forest Act in the light of the recent developments might be invited from State Governments and a proposal for the amendment of the Act in the desired directions should be drawn up. The suggestions of the States/Union Territories were examined by the standing committee of the CBF in June, 1963. The standing Committee set up a sub-committee to consider the question of amendment of the Act. The CBF considered the report of the sub-committee in December, 1963 and recommended that "the recommendations of the sub-committee as modified by the Ministry of Law and the Ministry of Steel, Mines and Heavy Engineering be forwarded to the State Governments, who should initiate action for amending their Forest Acts". The issue of one aspect of forest management viz., nationalisation of trade in various minor forest products, came up again for discussion before the CBF in Feb., 1973. In order that there may be uniformity in respect of this legislation, the CBF recommended revision of the Act (Tiwari, 1985).

In a recent landmark judgement, the Hon'ble Supreme Court of India has

directed that Working Plans for all Forest Divisions shall be prepared by the State Governments and got approved from the GoI. Forest working shall be carried out strictly in accordance with the approved prescriptions of the Working Plans. The Working Plans shall be prepared within a period of two years. The forests shall be worked according to an annual felling programme approved by the Ministry of Environment & Forests which shall be incorporated in the concerned Working Plan. In case a Working Plan is not prepared within the time frame, felling will remain suspended till the regular Working Plan is prepared and got approved (Anon., 1998)

Problems and Prospects

All the foregoing should not lull us into a false sense of security. Our forests today are still under manifold threats emanating from varied quarters. Population growth continues unabated, necessitating increase in food production. This latter pressure ultimately finds its way in further deforestation in order to increase total land under agriculture.

Alongside the constant increase in human population is the unabated increase in total livestock - most of it unproductive. Yet, even unproductive livestock remains an economic resource for the owners as this livestock continues to be grazed in the forests/forest fringes thereby entailing little or no cost to the grazer but imposing constant threat to the forest resources. Simultaneously, the threat from indiscriminate lopping which accompanies grazing further puts stresses on regeneration. The state of our pastures and grazing lands continues to be a cause of concern.

The energy crisis is yet to be resolved, and firewood and agricultural residues/wastes remain the major source of energy in rural India, resulting both in illicit felling as well as the burning of valuable organic matter which could well have been utilised as manure.

Deforestation in the catchment areas of our rivers and its downstream effects in terms of silting and floods remove valuable topsoil with all its ill effects upon the food and ecological cycle.

The growing international living matter tissue/genetic engineering patent regime has just started showing the kind of far reaching impact it can have upon the life of the common man, necessitating the formulation of a national strategy that will preserve our indigenous gene pool reserve.

Issues related to increasing production of industrial timber in a time when fellings in natural forests have been banned need the formulation of strategies which have been postponed for far too long. These need urgent solutions if we are to reverse the increasing trend of illicit fellings and timber smuggling, which, at times, are even taking a toll in terms of lives of forest personnel.

Above all, the national environmental conservation strategy needs to be further strengthened if the ill-effects of air and

water pollution due to industrial effluents as well as improper waste disposal and their consequent effects upon the green cover are to be controlled.

These are some of the areas which continue to cause concern on a national scale, and solutions to these are still inadequate or elusive.

Conclusion

The India's forests have been systematically managed for fifty years. We have evolved and enunciated an excellent Forest Policy. Our flora is rich and varied and we produce a steadily growing amount of both timber and NWFPs. In the area of preserving our fabled faunal wealth, important strides have been taken. The vital need to conserve our gene pool and biodiversity has been recognised and organised measures initiated in this direction. Yet, much remains to be learned and done about the art and science of forestry, though it can be claimed that the foundations have been well and truly laid. Recent developments in the country pose new problems to modern foresters, but it is to be hoped that the lessons learned and steps initiated in the past 50 years will stand them in good stead in conserving and utilising forests as a vital National Resource.

SUMMARY

This article is an overview of the path of progress of Indian forestry over the last five decades of post-Independence era. The state of India's forests and Indian forestry at the time of Independence is described. Various milestone events over this period are enumerated. The changing trends in forestry thought and practice, evolving legislation, institutions, and the evolving concepts have been detailed. India has been fortunate in having a forestry department established on scientific lines since nearly a century. The period since Independence has accelerated the process of scientific management of forests, despite the constraints faced by way of exploding population and alternate land-use practices which have impacted upon the forests in a big way. The foundations have been well laid. It now remains to the nation and to the foresters to carry the new concepts and thinking forward to preserve and protect the national forest and biodiversity wealth.

स्वतंत्रता के उपरांत भारत में वन और वानिकी के पचास वर्ष

जी०एस० रावत

सारांश

यह अभिपत्र स्वतन्त्रयोत्तर युग के पिछले पांच दशकों में भारतीय वानिकी के प्रगति पथ का उपरिदर्शन है। स्वतन्त्रता मिलने के समय भारत के वनों और भारतीय वानिकी की स्थिति क्या थी उसे बताया गया है। इस अवधि की विभिन्न मील स्तम्भ बनी घटनाओं को गिनाया गया है। वानिकी विचारधारा और व्यवहार की बदलती प्रवृत्तियों, विधि विकास, संस्थाएँ और नई बनती धारणाओं को समझाया गया है। भारत का यह सौभाग्य रहा कि यहाँ लगभग एक शताब्दी पूर्व वैज्ञानिक ढंग पर वन विभाग संगठित किया जा चुका था। स्वतन्त्रता के बाद की अवधि विस्फोट करती जनसंख्या वृद्धि और वैकल्पिक भूमि उपयोग प्रणालियों के कारण वनों पर पड़ी भारी कठिनाईयों के बावजूद वनों के वैज्ञानिक प्रबन्ध में प्रगति हुई है। नींव भलीभांति पड़ चुकी है। अब यह देश और इसके वानिकों की जिम्मेदारी है कि वे नई धारणा और विचारों को राष्ट्रीय वनों और इसकी जैवविविधता संपत्ति को संरक्षित और सुरक्षित करने के लिए आगे बढ़ाएँ।

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