50 YEARS OF FOREST MANAGEMENT IN INDIA

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Introduction

The 50 years of Independence have witnessed profound changes in demographic, economic and social make up of the country. The changes particularly during the last 20 years or so had epoch making impact on Forest Management. The World Conservation Strategy of 1980, the Earth Summit (Rio Conference) of 1992 followed by Convention on Biological Diversity and the Climate Change Convention of 1997 in Kyoto have changed our perceptions of forests and their role in Sustainable Economic Development, conservation of resources, world food and water security as also the health and happiness of over 4 billion people. In short, forests with all their components such as biodiversity, micro-fauna and micro-flora are now recognised to be basic to the production of wholesome food, pure air, uncontaminated and assured supply of water.

India richly deserves the credit for having been one of the earliest among developing countries to have initiated scientific Forest Management about a century and a half ago. Indian Forestry also produced world famous forestry luminaries such as Troup, Champion, Bor and Seth, to mention only a few. Now the scenario has changed radically. The new knowledge and understanding has cast serious doubts about the concepts and beliefs long held and practiced in India. As for example, the concept of Sustained Yield of Timber is no longer relevant as also our concept of a Normal Forest in which each age-class occupies an equal area. However, the cardinal principles of Forest Management viz., annual harvest should not exceed increment and that no area should be exploited unless its regeneration is guaranteed, are still valid. In the changed circumstances, Indian Foresters are faced with a challenge and a chance to be a leader again in the region in redesigning, nay, reinventing Tropical Forest Management.

The most important changes that have affected Forest Management during the last 50 years are, *inter alia*, as follows :

(1) Consequent upon India becoming a democracy, the people have become central in legislation, planning and implementation of all activities, in place of the Crown.

(2) Population has almost trebled since Independence. This means, the demand on forests has at least trebled whereas, the forests have not only not increased but have decreased!

(3) Independence ushered in a fast track development in several fields. These changes demanded an appropriate modification in Forest Management. Some how, the Forest Administration

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did not respond to them adequately but simply reinforced colonial practices.

(4) Environmental awareness and understanding of the multi-faceted role of Forests.

Forest Environment at the time of Independence

Independence immediately followed the Second World War during which large scale unregulated fellings much in excess of the M.A.I. were carried out in all accessible forests of the country. Independent India, therefore, inherited an over exploited and fairly open forest estate in which certain age groups were almost missing. A large number of plywood and other wood based industries came up during the war necessitating excessive felling. The Second World War therefore, represents a watershed in the history of Forest Management in the country. The country inherited about 9 million ha of private forests devastated for personal profit and greed; it inherited an environment of antipathy verging on hostility with the forest dwellers because, they came to be marginalized for generating revenue for the Raj; it inherited an administration which was insensitive and unresponsive to the needs and aspirations of the rural poor people who depend largely on forests and forest produce for their sustenance but, they did not matter as during the period of the Raj; it inherited a forest technology which was based on timber focused technology of industrial temperate countries; it inherited a research infrastructure designed for timber production and it inherited also the training framework also designed for commercialization of forests. It is in this background that, the Forest Management during the 50 years of Independence is to be judged and evaluated.

Forest Management during 1947-75

The policy of commercialization which was at the centre of Forest Management during the Raj, was reinforced, intensified and extended. Clear-cutting, therefore, became the predominating Silvicultural System for areas which were free of frost. Of course, rehabilitation of over-exploited forests had to be undertaken and continued as long as it was necessary.

In about 1960, at the request of the Government of India, Dr Von Mon Roy, an expert on Forest Industries, undertook a study of the country's raw materials situation for sustaining forest industries including Pulp and Paper. His findings gave a startling and alarming picture. He strongly recommended creation of large scale plantations of Quick Growing Species such as *Eucalyptus*. Thus was ushered in the well known and much maligned '*Eucalyptus* Wave'. This was a landmark event in the history of Forest Management and Forest Ecology in the country. The Government of India was so concerned about the raw material shortage that, by way of incentive it provided 100% subsidy initially. The States on their part, made all out efforts to take maximum possible advantage of this free (?) money. In the process, clearfelling became more prevalent and widespread; *Eucalyptus* came to be grown in the high rainfall areas of Kerala and Assam as well as dry and arid areas of Gujarat, Maharashtra, Andhra Pradesh and Rajasthan. In a few cases, even Teak and Sal bearing areas were cleared to make room for *Eucalyptus*. All this had to happen because of lack on knowledge of the silviculture of Eucalypts and absence of research support.

By about this time, the 'Economics Wave' overran the country's forestry sector; everything was judged with the yardstick of NPV/IRR. The credit for this development goes largely to the World Bank. I vividly recall the GoI mission (on which I represented the Forestry Division of the Ministry of Agriculture, Government of India, which had gone to Washington D.C. in 1975 to negotiate a few forestry projects. During the course of negotiations, the World Bank argued vehemently in favour of Quick Growing Species such as *Eucalyptus* and Tropical Pines to replace Teak and Sal which have long rotations, simply because the former give a better rate of return; ecological and environmental suitability and appropriateness were not even mentioned! This development put the sector to a great disadvantage because the hidden, indirect and unquantifiable benefits did not find a place in the calculation of IRR. In keeping with the then prevailing trend, the FAO and UNDP also supported projects for the promotion of industries. Thus, the entire forestry environment was surcharged with production euphoria. This euphoria was reinforced by the National Commission on Agriculture which strongly recommended the conversion of miscellaneous forests into man-made forests of only a couple of industrially important species. Thus was born the era of man-made forests which unfortunately turned out to be an era of ecological destruction! The transformation of forests was so radical and widespread that, only about 6 million ha of forests (out of 75 million ha) retain primary character. Table 1 reflects the degree and extent of this transformation in different types of forests.

The early Independence Period was characterized by a change in the direction of Forest Management from "Follow the Nature" to "Change the Nature"; from "Conservative Intervention" to "Aggressive Intervention". The aim of management was to produce more and still more of industrial wood in as short a time as possible. In the process, biodiversity and ecology came to be the greatest victims.

The sudden spurt in the plantation activity caused shortages of every kind; shortage of technical manpower, shortage of quality seed and a shortage of time for planning. As a result, unsuitable sites came to be selected accounting for large scale failures; financial accountability and discipline got a terrible beating. Every thing came to be reduced to mere numbers. Forestry which was both an art and a science, came to be reduced to being mechanical and monotonous.

Period 1975-1985

Noteworthy events of the period :

1. Publication of NCA Report in 1976.
2. Social Forestry initiation and extension of forestry activities outside recognized forest areas.
3. Formation of Forest Development Corporations to attract Institutional Finance.
4. Massive infusion of funds from international donors and the World Bank.
5. Promulgation of Forest Conservation Act of 1980.
6. Formation of World Conservation Strategy of 1980.

Table 1

Present Status of different Forest Types of India

Vegetation Type	Potential area (Th. ha)	Percentage remaining close to climax	Percentage remaining under other physiognomies
1	2	3	4
I. Wet evergreen forests of West Coast - W. Ghats :			
(1) *Cullenis-Mesua-Pallaquim*	2150	18.0	30.0
(2) *Dipterocarpus-Mesua-Pallaquim*	2250	9.5	51.8
(3) *Persea-Holigarna-Diospyros*	1075	28.8	60.0
(4) Montane shola	356	7.9	34.6
(5) *Memecylon-Syzygium-Actinodaphne*	675	11.9	25.0
(6) *Bridelia-Syzygium*	275	41.0	77.0
II. Wet evergreen Teak ecotone :			
(1) *Tectona-Lagerstroemia-Dillenia-Terminalia paniculata*	4975	17.5	24.9
(2) *Tectona-Terminalia-Adina-Anogeissus*	1625	20.6	33.2
III. Teak Zone :			
(1) *Anogeissus-Terminalia-Tectona*	36090	4.7	18.4
(2) *Tectona-Terminalia*	17250	15.4	45.0
IV. Teak-Sal Transition Zone :			
(1) *Terminalia-Anogeissus latifolia*	11975	5.5	16.3
(2) *Terminalia-Anogeissus-Cleistanthus*	10375	8.1	27.9
V. Sal Zone :			
(1) *Shorea-Buchanania-Cleistanthus*	8375	13.5	38.5
(2) *Shorea-Cleistanthus-Croton*	10750	6.8	13.9
(3) *Shorea-Buchanania-Terminalia*	100	15.0	90.0
(4) *Shorea-Terminalia-Adina*	19510	37.1	47.1
(5) *Shorea-Dillenia-Pterospermum*	1875	5.9	9.0
(6) *Shorea-Syzygium operculata-Toona*	4950	24.5	36.3
(7) *Toona-Garuga*	1000	17.2	17.2
VI. *Hardwickia* Zone :			
(1) *Hardwickia binnata-Albizia amara*	12125	11.8	12.5
VII. *Albizia amara* Zone :			
(1) *Albizia amara-Acacia*	15350	4.9	5.6

Contd...

1	2	3	4
(2) *Anogeissus latifolia-Chloroxylon-Albizia amara*	2725	0.4	0.60
(3) *Manilkara-Chlo*	2750	0.2	4.80
VIII. *Anogeissus pendula* Zone :			
(1) *Acacia senegal-Anogeissus pendula*	3460	1.2	4.30
(2) *Acacia catechu-Anogeissus pendula*	15805	7.8	10.60
(3) *Anogeissus pendula-Anogeissus latifolia*	5000	2.41	5.10
IX. Deccan Thorn Forest :			
(1) *Acacia-Anogeissus*	9780	0.0	0.27
X. Deccan-Indian Desert :	17250	0.0	0.00
(1) *Acacia-Capparis*			
XI. Indian Desert :			
(1) *Prosopis-Capparis-Zizyphus-Salvadora-Calligonum*	30875	0.0	0.00
XII. West Himalayas :			
(1) Sub-tropical evergreen Sclerophyllous forest	1340	-	23.30
(2) Alpine steppe	5600	-	4.10
XIII. Himalayas :			
(1) Sub-tropical *Pinus roxburghii*	4900	-	19.20
(2) Temperate mixed Oak and coniferous forest	2360	-	54.60
(3) Temperate coniferous forest	912	-	13.60
(4) Sub-alpine forest	5706	-	3.80
(5) Alpine scrub	512	-	9.40
XIV. Eastern Himalayas - North-eastern India :			
(1) Tropical Wet evergreen forest	5860	-	14.70
(2) Tropical moist	5472	-	32.60
(3) Sub-tropical broad leaved hill forest	300	-	49.30
(4) Montane wet temperate forest	2828	-	6.40
XV. Andaman and Nicobar Islands	634	Greater	Greater
(1) Tropical wet		than 80	than 90
XVI. Coastal :			
(1) Mangrove	550	-	-

Source : Forest Management in India: A Critical Review by Madhav Gadgil, S. Narendra Prasad and Rauf Ali. (Mimeographed).

7. Creation of the Department of Environment.

Production of industrial wood continued to occupy the central stage with a vigor unknown in the past. Hence, there was more of Clear Cutting and more of Quick Growing Species. This becomes obvious when we compare the area planted during 1951-56 viz., 52,000 ha with that planted during 1980-85 viz., 46,46,198 ha. In order to hasten the process, Forest Development Corporations were created in almost every State. All through these years, non-wood products, the life-blood of tribals did not receive any attention.

There was considerable awakening about environmental cost of development in general and monoculture and introduction of exotics in particular. The World Conservation Strategy was the result of this awareness. The creation of the Department of Environment was also a response to the concern for the protection of environment. *Eucalyptus* came under severe attack by environmental Groups/ NGOs. The Forest Department, instead of carrying out appropriate changes turned a blind eye to this widespread criticism and dogmatically stuck to *Eucalyptus*. The Department could not produce any convincing scientific data to support their claim. This resulted in a considerable loss of credibility of Forest Department all over the country. This period represents the beginning of conflicts between the Department and Ecologists and Environmentalists.

The transformation of the character and composition of the forest had a profound impact on the life and livelihood about 50 million forest dwellers; the marginalization and pauperization of tribals led to the breaking down of their social and family structures. Some of them were forced to migrate to urban areas in search of employment.

The Period 1975-85 represents the period of culmination of Clear Cutting and the beginning of awareness regarding the need to maintain forest canopy at all times, the need to avoid exotics and the need to maintain diversity.

Period 1985 to-date

This period represents a watershed in the history of Forest Management in the country. During the period 1975-85, Clear Cutting was the rule rather than an exception. However, this period initiated a change from "Change the Nature" to "Restore the Nature". Environmental awareness and a better understanding of the role of forests in the preservation of biodiversity, containing global warming and ozone depletion and in ensuring sustainability have invested forests with importance not imagined before.

Major events of the period :

1. Revision of National Forest Policy in 1988.

2. Policy decision of 1990 to make Tribals partners in Planning, Management and Profit and to involve NGOs. This ushered the era of Joint Forest Management.

3. Earth Summit, Biodiversity Convention, Treaty to contain ozone depletion and the Kyoto Conference on Climate Change.

4. Spotted Owl controversy of U.S.A.

leading to reinforcing the need to stop Clear Cutting.

5. Tropical Forestry Action Plan.

6. G.E.F. (Global Environment Facility)

The period ushered in an era of a shift from man-made forests to natural forests all too suddenly which caught the foresters unawares. This change came at a time when the art and science of managing natural forests had almost been forgotten; it came at a time when there was little research support for the new design of Forest Management. How fast should the existing forest be converted? What Silvicultural System or a hybrid of Silvicutural Systems be employed? What is the composition of the emerging forests that should be aimed at? What should be alignment of different species in a given canopy? This type of Forest Management poses perhaps one of the greatest challenges faced by the foresters.

When Social Forestry was conceptualized and implemented, it was anticipated that the treelands so created on wastelands would ultimately provide the basic needs of the rural people and thus reduce the existing pressure on forests. Unfortunately, this failed to materialise. Social Forestry Programmes have, by and large, failed if we consider only the plants that have survived. But, the reality is that, but for Social Forestry, the general awakening and the degree of tree consciousness being witnessed to-day, would not have come about. This to my mind is the real success of Social Forestry.

Since Wastelands are extensive, about 100 million ha, the Government of India created a National Wastelands Development Board. The objective was to promote reboisement of wastelands. Since such lands are owned largely by States, the Board's role was largely that of a catalyst and a facilitator and provide monetary incentives to State Governments and NGOs. The Board organised quite a few Seminars and Workshops regarding various aspects of Wastelands Development. Though the concept and the objectives were laudable and excellent, somehow it did not click as is the case with most of Government implemented programmes dealing with the community. The centralized working, unfamiliarity with field realities, absence of adequate and reliable data and absence of research support contributed to their ineffectiveness. These difficulties were compounded by absence of a rapport between NGOs and the Forest Functionaries and desire to work together harmoniously. It appears to me that, somehow, the Forest Departments developed a feeling that they were being sidelined. I personally feel, that Foresters are not trained to deal with people and deal with their organizations with compassion and empathy. Unless trust and confidence are established among the participating parties, there is no likelihood of a lasting success.

Tropical Action Plan was an excellent idea to pool together all available resources, national and international, and plan Forestry Development holistically. It seems to me that, this document was rushed through, beneficiaries were not consulted and the field realities were not adequately evaluated. It virtually contained more of the same, more industrial plantation, more focus on timber, greater reliance on governments rather than the people and their organizations. No wonder, it failed to deliver.

It will be seen from the above account that there has been a succession of failures resulting in continued destruction and degradation of forests. A new direction and a new strategy therefore, became imperative. Fortunately, the work done by Dr. Banerjee during the early seventies had a great appeal. He diagnosed the real cause why the rural poor destroy forests. He came to the conclusion that, it is unemployment which forces the poor to destroy forests and eke out a living, in absence of alternative avenues of livelihood. Thus was born the concept of Joint Forest Management (JFM). Also, independently of this, some villagers in Orissa, Gujarat and the like have been protecting forests without any Government involvement. Also, a few devoted and motivated Foresters like Pathan of Gujarat have been developing models of Forest Management with the active participation of the villagers concerned. It is about eight years that JFM is in operation in almost all the States, with mixed results. The basic foundation seems to have been neglected; the Foresters, the NGOs and the people concerned were not adequately prepared to receive this programme wholeheartedly. Also, there is no mechanism to continually monitor, review and refine the activity. Precious little is being done to engender trust and confidence among the participating agencies. There is little direction and guidance regarding the technology which has to be different from the known forest technology. I find in a large number of cases, lack of commitment to the ideology and philosophy of JFM.

Present Situation

Foresters are fighting a losing battle to save whatever still survives as forests. There are still large scale encroachments largely encouraged by political expediency; there are still large scale illicit fellings because of prevailing poverty; there is still poaching of endangered animals because people are not actively associated, empowered and made partners. There is a wide spread absence of commitment and presence of mistrust among the participating agencies.

In so far as over 30 million ha of Degraded Forest lands are concerned, the classification of such lands reflecting their status and rehabilitability is yet to be carried out. It is a stupendous task in itself. The technology to manage such forests and convert them into mixed unevenaged crops of a great economic value is unknown to scientists; it is known only to the forest dwellers who are rarely consulted. The result is : every Forest Division does what it thinks is the best.

There is very reason to believe that forest productivity has decreased substantially and is still decreasing. The surviving forests are sick and unstable because their character and composition are radically altered; they cannot fulfill their productive, protective, environmental and social functions matching their potential.

A lot of damage to biodiversity has taken place. In absence of a comprehensive Biological Survey and a Base-Line Survey locality-wise, it is not possible to quantify the damage. However the author's observations indicate that in Gujarat alone, Bamboos have disappeared from Danta, Sabarkantha and Godhara areas. Similarly, *Tamarix articulata* has become almost extinct from its home, the Kutch District. The situation regarding uncultivated fruit trees which used to provide minerals and vitamins to the rural poor have become rare. Such examples can be multiplied. The

net result is that (1) the gene resources have decreased thus shutting out unknown options for the future; (2) nutrition and health of tribals and other rural poor has suffered, and (3) unemployment has increased leading to encroachment on forests and illicit fellings.

Ecological Fallacies

The Forest Management was based on a few ecological fallacies, important among which are :

(1) All that is not marketable is of no consequence and hence not worth preserving.

(2) Forests can be managed for sustainable production of only a few preferred species.

(3) Man-made Forests can be managed sustainably for maximum production of a few preferred species.

(4) Wildlife can be managed in isolation.

(5) Sustainable Forests can be achieved without ensuring sustainability of forest dependent communities.

(6) Forests and Agriculture are two independent and mutually exclusive Land Uses.

(7) Forest Protection can be ensured by the Forest Department if given wide powers, weapons and more staff.

Conclusion

Tropical Forest Management has to be reinvented; it has to be Tropicalized, Indigenized and Humanized. Land is our fundamental resource. Unfortunately, it is this resource which has suffered a great deal; more than half of it is sick. The spread of desertification, salinity, floods and waterlogging are attributed to the destruction of forests and trees which are imperative in a predominantly tropical environment. The health of land and the health and the distribution of forests and tree growth are intimately interlinked; one cannot be achieved without the other. Hence, it would not be an exaggeration to say : Take care of the health of forests and they will take care of our precious land resources.

Forest Management during the 50 years of Independence has made a full circle : From Conversion to Regular Crops back to Conversion to Irregular Crops. This is a welcome trend because it contributed to increasing biodiversity and decreasing unsustainability; it contributed to supporting and sustaining various sub-systems that make up a tropical forest ecosystem. In a sense, the trend represents Tropicalization, Indigenization and Humanization of Tropical Forest Management in the country. We have yet a long way to go; we have yet to address a large number of technical problems. Be that as it may, it is surely not beyond the competence and capability of our to-day's Foresters!

SUMMARY

Forest Management during the 50 years of Independence has made a full circle : from Conversion to Uniform Crops and back to Conversion to Irregular Crops. The early years of Independence were characterized by production (for industry) euphoria. Von Mon Roy's Report on the status of raw

material supply in the country and the National Commission on Agriculture's Report reinforced this industry oriented production. The objective of Sustained Yield of Timber which guided and governed Forest Management during the early 30 years of Independence, could not be achieved. The concept of a Normal Forest in which each age-class occupies an equal area came under attack for environmental reasons. 1980 was watershed year. The World Conservation Strategy altered the way we look at Forests and Forest Management. During the subsequent years, environmental awareness and consciousness swept the world. The Earth Summit, the Convention on Biological Diversity and the recent Climate Change Convention have all focused on the need to maintain forest cover, conserve biodiversity and ensure sustainability. This led to the stoppage of Clear Cutting System, and the need for increasing production of non-wood products for sustaining forest dependent communities. All this is possible only by making forest sustainable in all its dimensions. The forests of the country are sick and unstable and have suffered heavily in productivity. A little over 30 million ha have been degraded. The restoration of these forests requires a different approach ; a different technology and a different administrative structure. This is one of the biggest challenges facing the foresters to-day.

भारत में वन प्रबन्ध के पचास वर्ष

एस०ए० शाह

सारांश

स्वतंत्रता के पचास वर्षों के दौरान वन प्रबंध ने अपना वृत्त पूरा कर लिया है, पहले, एकसमान फ़सलों पर गया और फिर अनियमी फ़सलों पर पलट कर आ गया। स्वतंत्रता के प्रारंभिक वर्षों में इसकी विशिष्टता थी उद्योगों के बाजारों के लिए उत्पादन। वोन मोन रॉय की देश में कच्चा माल मिलने की स्थिति पर रिपोर्ट और राष्ट्रीय कृषि कमीशन की रिपोर्ट ने इस उद्योगोन्मुख उत्पादन को बलवान बनाया। प्रकाष्ठ की सतत प्राप्ति मिलती रहती रहने का उद्देश्य, जिसने स्वतन्त्रता के प्रारम्भिक 30 वर्षों में वन प्रबन्ध को दिशा दिखाई और उसे प्रचालित किया, प्राप्त नहीं किया जा सका। सामान्य वन की धारणा को, जिसमें प्रत्येक आयु-वर्ग के लिए एकसमान भूक्षेत्र चाहिए, पर्यावरण कारणों से आक्रांत होना पड़ता। 1980 का वर्ष विभाजन रेखा बना। विश्व संरक्षण रणनीति ने उस ढंग को बदल कर रख दिया जिससे हम वनों और वन प्रबन्ध पर अपनी दृष्टि डाल रहे थे। इससे बाद के वर्षों में पर्यावरण जागरुकता और संचेतना ने समूचे विश्व को अपनी लपेट में ले लिया। पृथ्वी शिखर सम्मेलन, जैवविविधता अभिसमय और विगत जलवायु परिवर्तन अभिसमय सभी ने वनों को पूर्ववत बनाए रखने, जैवविविधता का संरक्षण करने और सततता सुनिश्चित बनाकर रखने की आवश्यकता पर ध्यान केन्द्रित किया है। इससे निश्शेष कटान बन्द हो गया और वनों पर निर्भर समूदायों को बनाए रखने के लिए काष्ठेतर उपजों का उत्पादन बढ़ाने की आवश्यकता पर पहुँचना पड़ा । ऐसा वनों को उसके सभी आयामों में सतत वर्तमान बनाकर ही किया जा सकता है। देश के वन बीमार और अस्थिर हैं और उनकी उत्पादकता में भारी कमी आई है। 300 लाख हेक्टेयर से कुछ अधिक क्षेत्र व्याह्रसित हो चूका है इन क्षेत्रों के पुनःसंस्कार के लिए भिन्न प्रकार की दृष्टि, भिन्न प्रकार की प्रौद्योगिकी और भिन्न प्रकार की प्रशासनिक अधोसंरचना चाहिए। आज के वानिकों के सामने खड़ी बड़ी-बड़ी चुनौतियों में से एक बड़ी चुनौती यह भी है।