

FORESTRY EDUCATION AND TRAINING IN INDIA - AN INTROSPECTION

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Historical Background

Training in Forestry in our country began in 1867, when the adoption of scientific forest management called for the services of trained foresters. Senior Forest Officers were sent to France and Germany and subsequently to Britain to undertake training in forestry, as there were no infrastructure facilities for such training in the country. Training of senior forest officers continued in Europe till 1925. Their training started in our country at the Forest Research Institute (FRI) in 1926 and continued till 1932, when lack of demand for officers compelled its closure. The promulgation of Government of India (GoI) Act 1935, which transferred forests to the Provincial List, led to the abolition of recruitment at senior level. The demand for trained officers to manage forests in the Provinces resulted in the creation of the Indian Forest College (IFC) in 1938, where Provincial Forest Officers were trained. The level of training was upgraded in 1940 and was given all-India outlook in order to manage the National Assets. The course was termed as the Superior Forest Service course which offered "Associate of Indian Forest College (AIFC)" Diploma, replacing the Provincial Service course. This course was continued till 1975 (with the interruption for 3 years i.e 1968-70, 1969-71 and 1970-72).

Following the creation of the Indian Forest Service (IFS) in 1966, the training of

IFS officers started in 1968 in IFC along with the State Forest Service (SFS) trainees till 1975. After 1975 the Indian Forest College was exclusively for the training of Indian Forest Service probationers with a separate course of its own and the increased demand for training of State Forest Service officers necessitated establishment of separate State Forest Service training colleges. The Government of India, therefore, established 3 State Forest Service officers' training colleges, the first at Burnihat in 1976, the second at Coimbatore in 1980 and the third at Dehra Dun in 1981 to cater to the needs for the training of State Forest Service officers. The Government of India subsequently upgraded the IFC to the level of a national academy and named it after the late Prime Minister Mrs. Indira Gandhi as Indira Gandhi National Forest Academy (IGNFA) in 1987.

The cadre of Range Forest Officers (RFO) evolved out of the need for a link between the officers at the higher administrative levels and the lower subordinate field staff. Training of RFOs was entrusted with the Central Government because of the technical nature of the training, lack of infrastructural facilities for training in the States and the need for centralised training of officers of this cadre. In 1890, the Government of Bombay, started a Forest Rangers' College and 203 students were trained till its closure in 1903-04. The Central Forest School at Dehra Dun,

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established initially in 1878 by the government of North-Western Province and Oudh (now Uttar Pradesh), was taken over by the GoI in 1884, to start the training of RFOs centrally. This school was renamed as Imperial Forest College in 1906, with the inauguration of the FRI, and continued to train RFOs in two year training courses. There was interruption during the period 1933-35 and on its reopening it was renamed as Indian Forest Rangers' College (IFRC). The Government of Madras (now Tamil Nadu) had also started a forest college at Coimbatore in 1912 for training of their RFOs. It was closed in 1939 during the War and reopened in 1945. In 1948 the college was taken over by the GoI to reduce the pressure at the IFRC. In 1955, two Rangers' colleges were renamed on regional basis as Northern Forest Rangers' College, Dehra Dun (NFRC) and Southern Forest Ranger's College, Coimbatore (SFRC).

The rapidly increasing demand of trained RFOs in the States for manning the forestry sector programmes in the Forest Corporations and the Social Forestry Wings after the report of the National Commission of Agriculture (1976) led to creation of three more Rangers' Colleges. The Eastern Forest Rangers' College, Kurseong (EFRC) was opened in 1974, the Central Forest Rangers' College, Chandrapur (CFRC) in 1976 and the Forest Rangers' College, Balaghat (FRC) in 1979. These five colleges were not able to meet the demands from the States for training RFOs and on the request from the States, the Government of India (GoI) agreed to de-centralise the training of RFOs, permitting the States to establish their own colleges for training RFOs under certain guidelines to safeguard the quality of training. This decision led to the establishment of five more Rangers colleges during 1979-82; Haldwani, Uttar Pradesh

(1979), Rajpipla, Gujarat (1979), Angul, Orissa (1979), Jabalpur, Madhya Pradesh (1981), Chikaldra, Maharashtra (1982).

All the colleges, centrally and State run, except EFRC and FRC Balaghat followed a condensed course of one year training by raising the initial entry qualification to a Science Graduate to meet the sudden increase in demand for trained RFOs till 1989. However, as one-year course was considered inadequate to meet the job requirements, the two years course was re-adopted from 1990. In a Cabinet decision in 1986 the GoI decided to decentralise the training of RFOs completely and give this responsibility to the State governments maintaining the guidelines to safeguard the quality of training. The Central Government run Rangers colleges were gradually closed and handed over to the respective State governments where they were located. NFRC Dehra Dun was closed down prior to the Cabinet decision in 1984, SFRC Coimbatore in 1987 and CFRC Chandrapur in 1990. FRC Balaghat was taken over by the MP government in 1990 that has continued running the courses. Since the government of West Bengal did not take over the EFRC, Kurseong it continued to run on *ad hoc* extension of the Union Ministry of Environment & Forests until June 1997.

Due to the stabilisation in the requirements of trained RFOs the two State-run Rangers Colleges, Jabalpur MP (1987) and Chikaldra (1988) were also closed down. A new Rangers College was opened in Jalukbari (Assam) within the premises of the Foresters Training School of Assam in 1989 for meeting the requirements of the North-Eastern Region. The College (North-East Forest Rangers College) is funded by the North-Eastern Council. The

mushrooming of Forest Rangers Colleges and their subsequent closure, indicates that there was no long term planning for requirement of trained manpower.

At present, therefore, we have IGNFA for IFS officers; three SFS colleges at Dehra Dun, Coimbatore and Burnihat for SFS officers; and six Ranger's colleges at Kurseong, Haldwani, Balaghat, Rajpipla, Angul and Jalukbari for RFOs.

The training of foresters and forest guards has always been the responsibility of the State governments except for a brief period between 1952 to 1960 when a Regional Foresters' School was run by the GoI at SFRC Coimbatore which catered to the needs of the States of Madras, Andhra Pradesh, Mysore, Kerala and Andaman & Nicobar islands and 196 foresters were trained during that period. Currently there are about 48 training schools in the States for imparting training to the foresters and forest guards. The training pattern varies from State to State.

Objectives of Forestry Training and Education in the Past

Forestry education had begun in India with the first theoretical courses given by Brandis and Schlich in Central Forest School at Dehra Dun. It all started keeping in mind the necessity to pay attention to the scientific requirement, especially in natural sciences and to develop competency to survey a forest and to plan and construct forest roads. The primary objective of the education then was to commence and regulate exploitation on scientific lines by preparing working plans based on the concept of sustained yield. Until 1950 purpose was to develop the full potential of the forests viz., the attainment of progressively increasing yield till the full

potential was reached. Forestry training in our country has been unique in the sense that it has been a blend of education and training both. The objective has been to develop the capability to understand and deal with the technical aspects of forestry and prepare the forester to undertake the specialised job that the forestry is.

We had all along been operating on what many people now term it as "frontier mentality" or "frontier ethics". It is a human-centred view characterised by three precepts: first it sees the world as a source of an unlimited supply of resources for human use. Second it views humans as apart from nature rather than a part of it; people in and around the forests somewhat undesirable situation. Third, it views nature as something to overcome. Frontier mentality sees the natural world as a means to fulfilling human needs, showing little regard for the consequences of explosive actions. It is fuelled by an irrational commitment to maximise material output and consumption. High technology has played a major role in environmental destruction throughout the world. Over the years, however, society has benefited greatly from it. Although a boon to the society, technology has extracted a terrible price.

Nobody in the last or early part of this century saw anything wrong with this thinking. We had far less people and far more forests than what we have today. Things have changed dramatically after Independence. After Independence we had to manage our own affairs. We had ourselves to blame or applaud for our own mismanagement or management. The population increased in geometrical progression. At the end of the century we are touching almost a billion mark. We have to now cope with large-scale expansion

of urban centres and spread of agriculture at the cost of forests. Our forests have been fighting a losing battle against encroachments and other pressures from all sides. To top it all we had also the problems of ever increasing human greed as a result of materialism and all the associated problems of development and affluence.

Over the years, the frontiers of forestry have expanded enormously. The task of each generation of forester has been becoming more and more difficult and multifarious than that of his predecessors. We belatedly realised that forests could not be protected without the active involvement of the people in the affairs of the forests. Every step taken by the foresters against the will of the rural people failed. We could no longer develop and expand the forests by keeping humans apart from the forests. We felt the need to institute a universal culture of sustainability in which all people had access to natural resources and chance to earn a livelihood. This called for tremendous attitudinal change amongst the policy makers and forest managers.

We therefore moved from traditional inward looking forest management practice to social forest practice in 1970 and then to Joint Forest Management practice in the 1990s. We have now given up the legacy of frontier ethics and moved on to the "Sustainable ethics". It holds that the earth has a limited supply of resources, that humans are a part of nature and that they are not superior to it. We have now learnt that infinite growth of material consumption in a finite world is an impossibility and that ever increasing production and consumption can only damage the life giving forest environment. This made us to go for conservation and the curtailment of

excessive resource use. This view has engendered a respect for forests and nature and also the land, air, water and all living organisms. It has nurtured a reverence for life. We have realised that sustainable development is concerned with the continued existence and well being of the humankind and that of the environment. We have become more and more aware of the interconnection of all the components of the earth and aware that our actions often have many unforeseen effects i.e. ecological backlashes. Such changes in attitude have forced us to exercise more restraint. We have now become concerned with our own future and also the future of coming generations. We now look for strategies that are not only appropriate from management point of view but also are morally and ethically correct as well.

Forestry Education in the Context of Changed Role of Foresters

In order to make 'transition to Sustainable Society' ethical changes are needed, but these must be accompanied by changes in the way people interact with the environment. This calls for strategy for appropriate technology, which puts people to work in a meaningful way; wise use of people and resources. But the big question is - Did we change our foresters accordingly? Did we bring about necessary changes in our forestry education and training system?

Samuel T. Dana and Evert W. Johnson have said in *Forestry Education in America Today and Tomorrow*:

"The professional forester of the future must be a man who is well grounded in the principles of forest land management, together with underlying arts and sciences on which such management is based. At the

same time he must have the breadth of view and the understanding of the economic, social and political world in which he lives to enhance his competence not only as a professional man but as a citizen and an individual."

Though said in the context of American foresters, it is equally relevant in our case as well. Scientific learning and technological progress are essential for improving the quality of life. Still more important is the simple practice of getting to know and better appreciate our natural surroundings and us. Forest education means learning to maintain a balanced way of life; it is about learning to live correctly. The founding fathers of our Constitution have enshrined in the Directive Principles of State Policy, the following duties for the State and the citizens regarding environment in general -

Article 48-A - The State shall endeavour to protect and improve the environment and to safeguard the forests and the wildlife of the country.

Article 51-A - It shall be the duty of every citizen of India (g) to protect and improve the natural environment including forests, lakes, rivers and wildlife, and to have compassion for living creatures.

The National Forest Policy 1988 states that -

Forestry education should be recognised both as a scientific discipline as well as a profession. Agricultural universities and the institutions dedicated to the development of forestry education should formulate curricula and courses for imparting academic education and promoting postgraduate research and professional excellence, keeping in view the manpower needs of the country. Academic

and professional qualifications in forestry should be kept in view for recruitment to the Indian Forest Service and the State Forest Service. Specialised and orientation courses for developing better management skills by in-service training need to be encouraged, taking into account the latest developments in forestry and related disciplines.

Till now forestry education has been the study of trees and forests. The forests have been the central focus. Everything else, including people has been peripheral. The problem with the present system of forestry training is that it is only teaching people about trees. Consequent upon this there have been conflicts over resource use. There have also been serious conflicts of interest between rural population and forest service. The village system of resource use has broken down. The local people everywhere saw foresters as arrogant, repressive and anti people. Disruption of the delicate balance of power in villages, repression and undermining of local customs has had disastrous side effects. There has been reluctance on the part of the foresters to recognise the decisions concerning forestry taken by the villagers, as they saw themselves as having a monopoly of knowledge about forests. By training, foresters always contended that local people were not capable of managing forests and that they needed protection from the consequences of their own negligence. They have tended to see other disciplines involved in community forestry only in a service role. The foresters like any other bureaucrat have great appetite for detailed information about forests when such information is not needed for afforestation and many other forestry programmes.

Foresters have always had a preference for solving problems with technical measures. They did not feel it necessary to first learn to deal with human beings. New approach to forestry training has to be, therefore, based on people, not trees. The changed orientation of forestry these days puts people at the centre of the forestry problem. Everything else is peripheral. An emphasis on tree is essentially an emphasis on technique. The new emphasis on people is emphasis on development. Such an approach emphasises not things but relationships - relationship between people, between people and trees and the landscapes they live in. A systems approach to forestry training can deal with techniques alone. It is rigid and cannot encompass the range and variety of human experience found in the landscapes in the field. It operates at an abstract level and hence is non-operational. The new approach has to be flexible, people centred, democratic, active, and horizontal. The foresters are now required to work for the interest of the rural people. Foresters have to increasingly involve people in the management of the woody biomass in and outside notified government forest areas. They now advocate multipurpose trees and shrubs and facilitate local tree generation. Foresters are now required to institute systems that build on locally existing knowledge of tree and forest management. The traditional forester was seen as anti-people and anti-environment primarily because he played the role of a policeman of natural resources and as an engineer of monoculture. Foresters are now expected to work with, not against, local land use systems. Foresters have to now shift their attention from a situation where they were almost in full control to one in which they control very little. Apart from being the forest managers, the foresters these days are plantation advisers and facilitators too.

They have to develop rural forestry technology that is drawn from existing experiences and to diffuse them spontaneously.

Forestry education and training must be the process of recognising values and clarifying concepts in order to develop skills and attitude necessary to understand and appreciate the inter-relatedness among human being, his culture and forests and other biophysical surroundings. The damage done to our forests and us is not yet so great to be irreversible, but time is running out. The actions taken now will determine the kind of future we shall have in the 21st century. The critical issue is to transform our institutions, our values and our behaviour so that they are consistent with our ecological and social realities. Objective of education and training now has to be to develop new competencies.

It is also necessary to know about the various constituents of the social institutions, how they function and how they interact with each other. As it is in other areas of the world, in India too the conservation and regeneration of forests are primarily a social problem and only secondarily a biological problem. Another aspect of the forestry education is the education for the environment. It means teaching about all the components and the constituents of environment. It means learning to understand the environment, establishing proper ecological equilibrium that entails proper use and conservation of resources and also includes proper environmental planning. Forestry education should cover man's relationship with forest as well as social and manmade environment. It should also include relationship of population, industrialisation, pollution, resource allocation and depletion,

conservation, technology, energy and urban and rural planning with the total biosphere. Further, education about forestry and environment should be a life long process and should aim at not merely imparting knowledge and understanding of man's total environment and of the methods and their application for improving our near and distant surroundings but it should aim at inculcating skills, attitudes, and values necessary to understand, appreciate and improve our biosphere. It should be interdisciplinary in its approach, drawing on the specific content of each discipline in making possible a holistic and balanced perspective. It should enable learners to have a role in planning their learning experiences and provide an opportunity for making decisions and accepting their consequences.

Objective of Forestry Education in Future

Bertrand Russel had said :

"The main objective of education should be to encourage the young to question and to doubt those things which have been taken for granted. What is important is the independence of mind. It is necessary for new ideas to emerge so that young people have every encouragement to fundamentally disagree with the stupidities of the day."

Objective of forestry education like any other education is to prepare for complete living not in the material sense but in the widest sense. It should prepare a person for self-fulfillment and be a tool for social development. It should help in self preservation and preservation of human race. It should help understand ecological balance in nature. It should make a person

not to look at a tree merely as an innate object or a structure to be exploited for material gain or individual well being. We have to look at the forests as complete entity, not as source of timber, fuelwood, and fodder or habitat of wildlife in separate unrelated boxes. It should stimulate concern for changing environment for the maximum long run as well as the immediate well being for the mankind.

The objective of forestry education can be subsumed in three domains discussed by Bloom in his book *Taxonomy of Educational Objectives : cognitive, effective and psychomotor*. The cognitive domain deals with recognition of knowledge, development of intellectual skills and abilities, which means behaviours like remembering, problem solving, concept formation and creative thinking. The affective domain includes the objectives that describe the changes in interest, attitude and values and the development of appreciation and adjustments. The psychomotor domain covers the manipulative or motor-skill area. the area includes doing things, which are required to be done under socially useful productive work..

The "Cognitive domain" has been divided by Bloom in to the following categories :

1-knowledge, 2-comprehension, 3-application, 4-analysis, 5-synthesis, and 6-evaluation. Knowledge has further been divided into knowledge of specifics i.e. specific terminology and specific facts, knowledge of ways and means of dealing with specifics and knowledge of the internals and abstractions in a field i.e. principles and generalisation, theories and structures. Comprehension has been divided into translation (skills and ability to translate

material into simple understandable language, and ability to understand non-literary statements, metaphors, symbolism, irony, and exaggeration), interpretation and extrapolation. Application means application of ideas, principles and theories and the ability to predict the effect of the change in a contributing variable on a phenomenon. Analysis means analysis of relationship and analysis of organisational principles. Synthesis means production of unique communication, preparation of plans or derivation of a set of abstract relations. Evaluation means judgements in terms of external criteria.

The objective of forestry education in the "cognitive domain" should be :

1. To help acquire knowledge of the trees and forest ecosystems.
2. To help acquire knowledge of the various biotic and abiotic factors those affect the trees and forest ecosystems.
3. To help acquire knowledge of environment beyond the immediate environment of trees and forest ecosystems.
4. To understand the various relationships between the forests and other components and constituents of the environment.
5. To help understand the biotic and abiotic environments.
6. To help understand the anthropogenic impact on the forests' ecosystems.
7. To understand the effects of unplanned natural resource utilisation.
8. To help understand meaning and scope of sustainable development.
9. To help understand the causes of social tensions and to suggest methods of avoiding them.
10. To help diagnose the causes of forest degradation and environmental

pollution and suggest remedial measures.

11. To help develop organisational skills.
12. To help develop observational skills and note details usually not seen by an untrained eye.
13. To help develop ability to draw unbiased inferences and conclusions.
14. To help develop ability to make meaningful suggestions.
15. To help acquire and develop ability to anticipate and manage changes.
16. To help develop ability to resolve conflicts.
17. To help develop ability to communicate effectively.

"Affective objectives" of the forestry education should be :

1. To help acquire interest in the flora and fauna of the near and also distant environments.
2. To help evince interest in the people and problems of the community and society.
3. To show tolerance toward various sections of the society. To appreciate the gift of nature.
4. To love the neighbours and value mankind as a whole.
5. To value equality, liberty, fraternity, truth honesty and justice.
6. To value purity of the environment.

"Psychomotor objectives" of the forestry education should be :

1. To help inculcate the respect for the common property resources i.e. to see forests as something that belongs to the community and to see that the trees are partners in life on this earth.
2. To participate and enthuse others to participate in the afforestation

- programmes.
3. To participate and enthuse others to participate in the forest protection activities.
 4. To participate and enthuse others to participate in the programmes aimed at minimising environmental pollution.
 5. To participate in urban and rural planning and execution programmes.

Curriculum

Forestry is not an exact science like physics, chemistry, etc. It is a multidisciplinary science. Each aspect of forestry has now become a topic of specialisation by itself. The curriculum must grow out of the needs of the foresters from the standpoint of appropriate forest and environment management and also the needs of society. The history of idea of every subject ought to form the nucleus. A perspective on social development should form part of the training programme. The objective validity of the historical process should not be lost sight of. A firm intellectual basis for ending the alienation of foresters from citizens must be prepared. The quality of training will determine the quality of our forests and environment of tomorrow.

Close interaction between foresters responsible for forestry education, Government, public and university is an essential means of guidance in development of the curriculum. Our vision of forestry profession and the role the foresters have to play in future should decide the curriculum in the school and the forestry training institutions. We must continuously assess the needs of all those who are affected by foresters' performance. We have to continuously seek answers to the questions - Is the right kind of talent coming up? Are the foresters measuring up to the

expectations of people affected by their performance? Are foresters getting sound training to handle public involvement? Are foresters capable of taking sound professional decisions? Are foresters sound enough to deal with the crisis situations?

In the light of what has been stated above the subjects to be covered in training should include :

1. Silviculture
2. Forest Management
3. Forest Utilisation
4. Land Use and Forest Policy & Planning
5. Physical Environment
6. Botany with emphasis of Taxonomy and Ethnobotany
7. Biometry
8. Tree Growth and Health
9. Soil Science
10. Land Restoration and Landscape Design
11. Watershed Management
12. Timber Harvesting, Marketing & Valuation
13. Ecoscience
14. Environmental Management, Environmental Impact Assessment and Pollution Control Measures
15. Wildlife Management & Conservation including Biodiversity Conservation
16. Forest & Environmental Laws, CrPC, IPC and Indian Evidence Act
17. Civil Engineering (to the extent of construction of building and forest roads)
18. Project Formation, Monitoring & Evaluation
19. Tribal & Rural Development
20. Sustainable Development
21. Social and Behavioural Science
22. Human Resource Management and fundamentals of Financial Management
23. Communication skills

24. Management of Conflict and Change
25. Participatory Rural Appraisal
26. Remote Sensing and GIS
27. Natural Resource Economics
28. Community and Social Forestry including Joint Forest Management
29. Forest Survey
30. Management Information System and Computer Application in Forestry
31. Ethics in Service

This will enable the foresters to perform their expected role in future and attain the objectives set out for them. They will then be ready to face the new challenges and create a professional niche for themselves

which is so very vital for establishing unique identity and enable them to stand out in the crowd. The process of building up appropriate and ethical attitude will then begin in the beginning of the professional career that will stand them in good stead in thick of times. Need of the hour is the forester with a sense of solidarity, who is willing to work at the margins of society to promote the well being of the people as well as the health of the natural environment. Only then people will not see the foresters as their nemesis and hurdles in the path of their progress; but as beacon of hope, facilitator for progress, protector of environment and upholders of the future of the coming generations.

SUMMARY

The historical background of the Forestry Education and Training in India with objectives, curriculum and expansion, right from the beginning till to-day has been sketched and described.

भारत में वानिकी शिक्षा और प्रशिक्षण - अन्तर्दशन

एस०एस० गरबयाल

सारांश

भारत में वानिकी शिक्षा और प्रशिक्षण की ऐतिहासिक पृष्ठभूमि को उसके उद्देश्यों, पाठ्यक्रमों और उनके विस्तार को ठीक आरम्भ काल से लगाकर आज दिनों तक रूपरेखा देते हुए वर्णित किया गया है।

References

- Anon. (1988). *National Forest Policy*, Govt of India, Ministry of Environment & Forests, New Delhi.
- Easton, T.A. and C.E. Rischer (1979). *Bioscope*. Mayfield Publishing Company 580 pages.
- Frome, M. (1984). *The Forest Service* - Second edition revised and updated. Westview Press 347 pages.
- Korten, D.C. (1990). *Getting to the 21st Century : Voluntary Action and the Global Agenda*. Oxford & IBH Publishing Company 233 pages.
- Kuchli, Christian (1997). *Forests of Hope: Stories of Regeneration* - Earthscan Publications - 232 pages.
- Wilson, E.O. (1990). *Biodiversity*. National Academy Press. 496 pages.