Forestry: from a colonial discipline to a modern vision

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It is difficult to fully understand the underlying assumptions of forestry education without looking through the keyhole of history. Anyone who travels to Dehra Dun in India and visits the forestry campus will understand that the weight of the imperial past is omnipresent: the original buildings are pure gems of colonial architecture, the various collections of plants and animals dating from the beginning of the nineteenth century are still referred to, forestry probationers eat in the “mess”, practice sports activities in white uniforms and maintain a horde of servants who serve tea from 5.30 am, collect the laundry or post letters.

In this paper, I shall argue that the forestry which is still currently taught in most institutions is rooted within a colonial ideology, and based on a reductionist approach to science. The development of forestry as an academic discipline since the 18th century, was an institutional response to new needs in environmental management created as a result of over exploitation of the forests by increasingly centralised and powerful states. The challenge for the profession in the 21st Century is to adapt and respond to new needs in environmental and social context and demands, and to shift from a disciplinary approach to a holistic one.

The history of Indian forestry provides the backbone for this paper. I have chosen India because the links with the past are more visibly obvious, the historical records available and the contemporary changes in forest policy have generated a lot of debates about the role of foresters.

The recurrent pattern of colonisation

In many places the colonial history of forests and of the development of forestry follow a common pattern. The story begins with the uncontrolled exploitation of hardwoods, used first for shipbuilding and later for the construction of the railways. The British felled sal (Shorea robusta) in the Himalaya foothills and other Shorea spp in Malaysia, teak in south India and Burma, while Dutch traders plundered the rich teak forests of Java and the French Navy took upon itself to monopolise teak in Cambodia (Peluso 1991, Flint & Richards 1992; Boomgaard 1992, Buchy 1993). It was the angst of seeing the depletion of these riches, which had long been held to be inexhaustible, which forced colonial governments to establish control policies in order to ensure future supply in raw material. Hence the emphasis of policies on controlling the forest estate by means of land appropriation, and the gradual and definitive abatement of the rights of usage held by local communities. The forest were surveyed, recorded, divided, closed and classified according to new and artificial administrative categories, to which corresponded new rules pertaining to utilisation of and access to the forest resource.

The colonial process echoed earlier national histories. The history of the French forest (Corvol 1987), for example, is that of an accumulation of restrictions on rights of usage and access to the forest for the rural communities, accompanied later by the development and implementation of silvicultural systems and of increasingly sophisticated forest developments. These measures made easier by the strengthening of a centralised monarchy, were intended firstly to ensure the future needs of the State, then to allow the expansion of commercial forestry at the expense of rural populations deprived of the access to and use of communal lands. The development of Japanese forestry (Totman 1989) reveals a long medieval period of abundance and waste, taking the archipelago to the brink of shortage while degrading the ecosystem. There followed in the seventeenth century, the establishment of increasingly restrictive legislation and new development policies. Here again, the main objective was to ensure the continuity of supply to the large national shipyards, and the satisfaction of the needs of the court and urban centers. In both these cases, the progressive growth of the population and its needs, as well as the rapid development of technology, led to increasingly acute competition between the rulers and the people over the utilisation of resource and space. The dominant classes secured a monopoly or proprietary rights with the support of legislation.

This leads one to reconsider the meaning of "colonial" forestry which more than the exploitation of a natural resource by one nation at the expense of another, was rather the result of resource appropriation by an elite in opposition to the majority of the powerless local population. Unequal access and control over the forest resource was to be maintained by newly independent states. Rife power struggles between different groups and between groups and the state still lie at the heart of most natural resource management issues today.

With legislation and new forest policies in India, grew the need for a professional body of expertise, and foresters gradually became responsible for implementing and developing socially alienating policies.
The development of the imperial forest service

It took about three quarters of the century for British administration to impose a forestry administration which would be independent from the Revenue Department, the central hub of British rule in India. After a series of aborted attempts to create a post of Conservator of Forest in the early decades of the nineteenth century, the first pieces of legislation took form in the 1840s. At this time forestry personnel on the ground were still scarce and their duties were limited to locating full grown trees ready for felling along with a few improvement works such as pruning and the removal of dead trees. In 1864, as economic stakes in the forest continued to grow, the Superintendent of the Revenue Department, while guaranteeing profitability, requested that the Government double the number of forest personnel so as to ensure continuous supply to the market and control over theft and the black market. Concurrently the subordination of the Forest Department to the Revenue Department redefined the role of the Conservator. The latter placed under the local responsibility of the collector, saw his functions limited to those of an inspector and adviser, leaving to the revenue officers the executive role and fiscal responsibility. At a time when the income from one acre of cultivated land amounted to that of several acres of forests, a Collector’s competence was measured by the extent of forest land relinquished to agriculture (Amery 1876).

In 1855, Lord Dalhousie's well-known declaration regarding the necessity of forest protection drew the main lines of a forest policy and marked a decisive turn in the history of Indian forests. In 1856, Dietrich Brandis, a German botanist, was given responsibility over the forests of Burma, which too had been severely damaged by abusive extraction of teak. He worked on the creation of forest administration in India and in 1864 became the first Inspector General of Forests of the Government of India. From that time onwards, little was to impede the development of forest policy in India.

However it is important for the Indian context to mention that the tensions between the Forestry and Revenue Departments where to remain unresolved. This conflict highlighted the presence of different forces within the colonial project: one camp supported the development of agriculture, the other saw the economic potential of the forests’ durable production (and later on the environmental necessity of retaining some forest cover). The Revenue Department was very powerful and one of the arguments against the creation of a separate forestry department was that it would result in more costs than benefits. Foresters had then to prove that forestry was going to be a viable enterprise (Ribbentrop 1900).

These developments must also be seen in the more global context of the reinforcement of the colonial machinery subsequent to the India Mutiny of 1857. The East India Company yielded to the colonial government which facilitated the development of bureaucratisation. State investigations were systematised and the close of the nineteenth century saw the establishment of major agrarian laws, the beginning of decennial censuses, the publication of statistical series and the regional collection of Gazetteers.

From the onset the embryonic Forest Department was put into a conflictual and possibly hostile environment. The foresters had to prove that their enterprise was economically worthwhile and they often had to fight against the pressures for the development of agriculture (Voelker, 1893). In order to impose the forest policy the Forest Department needed to become the exclusive legal owner of the forests. This was guaranteed by the adoption of the Indian Forest Act of 1878 which was to be the major text of forest policy (it remained unchanged until 1927 and even then the new text only amended part of the original document). "Scientific" forestry

As the number of foresters increased so did their hold on the forests. In India, the hold of the foresters on the forests was achieved through the Forest Settlement and the development of "scientific" forestry.

The forest settlement was to be a major surveying enterprise whereby each plot of state forest was to be surveyed, mapped and classified, and strict rules of use and access were defined. Unless individuals could prove private ownership, the forests were to become state forests and ancient rights of use were transformed into privileges which could at any time been with drawn. This gave the Forest Settlement officer (a forester) immense powers over the local communities.

The scientific forestry imported and developed in India stood in direct line with an essentially German continental tradition which itself was based on knowledge acquired since the end of the eighteenth century. It was then that administrators and foresters, alarmed by a dramatic impoverishment of forests and inspired by the development of methods of quantification, altered their approach to the management of forests (Lowood 1990). These concerns, along with a growing focus on making profits from the practice of forestry, resulted in "establishing a tradition of quantitative resource management" (Lowood 1990). After collecting considerable amount of quantitative data on trees and forests by using still developing methods of measuring and developing sizes and volumes, written accounts of forest stands were compiled. This was to provide "objective"
information about the forests. The first handbooks of "forest economy" appeared in the 1760s and forestry was elevated to the rank of science at university. Results of field studies were compiled in tables of measurement and calculations, which organised trees into various categories and served as an abacus for foresters in their silvicultural work. Controlled sample plots and classes of height and diameter, all of which were concepts used in forest surveys, date from this period. From these data, annual growth, theoretically exploitable without detriment to the permanence of the stands were deduced. However while working out their tables of projected yields, foresters and scientists had not it seems taken much account of environmental conditions. This oversight lead to the belief that a direct transfer of forestry practice from temperate to colonial forests would be appropriate. The fact that ecological conditions varied between Europe and the tropics, and therefore that the complex tropical forests would require different management regimes, never seems to be debated in the literature. Foresters were also blinded by early success stories of pine, teak and cedar plantations. Ecology as a word appears only in 1866 and the discipline didn’t impose itself before the twentieth century (Deleage 1991).

A direct heir of this tradition, and himself German, Brandis, as a botanist turned forester in Burma was the first to begin to gather systematic information on trees in a given plot. The objective was to evaluate the annual growth of a stand and to evaluate how much volume could be extracted each year without jeopardising the future of the forest. Brandis' work was followed by that of Schlich and several others, who saw in the Working Plan a form of protection for the basic elements of a sound economy, which "should measure the production and adjust to working of a forest in a manner most advantageous for the proprietor" (Schlich 1877).

The concentration of British interests on a limited number of species (with a particular focus on teak, sal, cedar, pine), did contribute to drastic changes in the landscape. Colonial officers followed a very specific economic objective and only extensive quantitative information concerning products pertaining to those are mentioned in the literature, as if local consumption ever mattered. Although the existence of minor products is recorded in working plans

Although it wouldn’t be helpful to blame early foresters for the narrowness of their interest, it is important to point out that early forestry was casting a very reductionist eye on the incredible diversity of the forest ecosystems. Foresters and other colonial administrators certainly overlooked the complex social and cultural interaction between local communities and their environment.

This focus on quantification, on a limited range of products, the discourse of the supremacy of "objective science" and the exclusion of divergent interests remain common in most forestry training institutions.

In his introductory address to a symposium on forestry education, Dogra (1994:4) exposed his vision of forestry:

"Professional forestry education is based on the principle that forestry is a professional science of managing and using, for common human benefit, the forests lands and natural resources that occur on , and in association with forest land, including trees, plants animals, soil, water and related air and climate...... Professional forestry education includes training forest engineers and technicians and this technical education is oriented towards the development of technical and operational forestry skills carefully planned to meet the needs of potential employees in industry, government and private sectors".

There is little space in this definition for a holistic vision of forestry which goes beyond technical and biophysical concerns. There is also little place for analytical and critical skills in such an education where "doing" (and presumably implementing decisions taken by others) takes the precedence over thinking, or the capacity to respond with sensitivity to new situations.

An elitist system

In order to compensate for a lack of competent personnel in the early years of British India, the State called upon volunteers from other administrative services on the basis of motivation and occasional forestry experience (Ribbentrop 1900). Early foresters were often army personnel. At the same time arose the question of training required for new foresters in the IFS. In Germany and France, long standing forestry tradition had favored the concept of forest management which was until then unknown or at least not put into practice in Britain (J.K. 1876). Hence early foresters were trained in Nancy, the forestry school founded in 1824. The emphasis was on science as well as on physical development: officers had to "be in good health and active". Later on high level forest administrators were trained in England under former colonial professionals. In 1922 only two Indians had been able to rise to the IFS because until 1913 knowledge of Latin was mandatory for admittance to the Forestry School at Oxford, just as only diplomas in science from British universities were recognised (Symonds 1966). As of 1922, 40 per cent of posts were reserved for Indians trained at the Dehra Dun forest school. Admission to the forestry schools for high level managers was highly competitive and so it remains in modern India. Needless to mention that no woman ever made it to the Imperial Forest Service, and
only a few women have joined the Indian Forest Service in the last two decades. The Indira Gandhi National Forest Academy (IGNFA) was set up in 1968 and replaced the Indian Forest Colleges set up in 1938. Foresters "were selected amongst promising science graduates" (Ray 1994:154). Ray also considers that "with their higher intellectual level they are able to grasp the technical aspects of the service, more effectively achieving its goal" (1994:155).

This elitism may not be true for all countries in the world but it certainly was in France and Germany and most of the French and British colonies. Even though at the end of the twentieth century, the forestry profession has lost some of its social elitism, the sense of being different and special still remain very strong in the corporate cultures and in training institutions.

Forging a "tough" identity

"The very nature of the job demands a high degree of discipline, toughness, physical fitness and self-sufficiency" Ray 1994:156.

From the early days, high level managers of field staff, caught up as they were between global economic imperatives, forced to demonstrate the financial profitability of forestry, the pressures from the Revenue Department and the growing hostility of the local populations, did not face an easy task. Foresters gradually became politically and socially isolated and this allowed for the development of an esprit de corps, and a professional identity: a forester was to be physically strong, was to be proud of being the guardian of the forests and had (relatively) a lot of power over local people’s access to the resource. Because of their geographic isolation foresters worked on their own and were responsible for their decisions with nobody within the bureaucracy questioning their acts as long as revenue came flowing in. Combining communication and reinforcing ideology, the Indian Forester, a monthly publication was started in 1875 and cemented this identity. The journal dealt (and still does) with scientific aspects of forestry, but is also a forum for readers, providing the opportunity to circulate news about postings, new appointments and promotion, obituaries and news from England. Few professions have managed to developed this strong sense of belonging, this sense of "us" and "them" is still a common attitude within the profession.

What is striking of course is the influence of France and Germany in establishing a "science" and a profession in the rest of the world. Even early American foresters, in the late nineteenth century studied in Nancy and Germany (Miller & Lewis, 1999).

Training institutions still play an important role in the forging of this identity. In the Indian National Forest Policy of 1952 it was stated that "a common forestry education is a very effective means of inculcating an esprit de corps amongst officers". In France, for example, there is only one school (Grande Ecole), which trains foresters at managerial level. The access to ENGREF (Ecole National du Génie Rural des Eaux et Forêts) is highly competitive, with high scores in mathematics, physics and biology used as the main selection criteria. Field trips, weekends away and the annual sought after school ball, all contribute to reinforce friendships and social networks. An "old boys" network of alumni (there have been few women joining ENGREF in the past and even fewer practicing their profession after graduation) operates within the national administration, but also has ramifications internationally in related sections of the FAO and The World Bank.

In Australia until recently, forestry was taught only at two institutions. Although it can be argued that there is nothing elitist in studying forestry at the Australian National University or at the University of Melbourne, the focus of education until recently has been on technical forestry. The formal student staff annual dinner, the award of annual prizes (like the Schlich medal), the network of alumni, the departmental student society, numerous field trips, all contribute to forging the identity which is very noticeable.

In the United States, the threat or the loss of this identity has fuelled debates in the last decade. With the shift from "forestry" courses towards "forestry resource management" ones it seems that there is "no more a clear definition of what forestry and foresters are" (Miller & Lewis 1999). This we are told "has broader political ramifications… and the apparent professions’ disarray… seems to confirm a marked decline in respect, a sharp loss in authority" (Gilmier 1996 in Miller and Lewis 1999). This "authority" and "respect" or abuse of, by many forestry services is precisely what has contributed to foresters unpopular image within communities. This call for a return to a stronger identity echoes in some way, conservative attempts for a return to fundamentalist values which too, have profound political ramifications.

Forging strong identities and self confidence may not be a problem per se. However identities based on elitism and esprit de corps can make it difficult at times to accept changes and new challenges. Even though there may be a recognition that the world is changing and hence that education and the curriculum need to change, the pressure from the practicing practitioners, the continuity within the teaching staff, and current national education policy in many countries, ensure minimal changes. In Britain, the forestry profession has very strong
links with the Institute of Charted Foresters which delivers recognised accreditation. Students with appropriate courses in their forestry degree may be exempt from taking some examinations to become accredited charted foresters. This has been a major brake to changes in the forestry curriculum (at least in one institution). It is perceived that the option of an easier accreditation attracts students who would not enroll in more radical forestry courses. Because of funding cuts, academic institutions have to rely more on industry funding and hence links with the industry are becoming stronger. While this could encourage teaching staff to be closer to the field reality it also decreases academic freedom, as few people dare being too critical of the industry establishment.

As this identity has been under attack in recent years, it seems that the profession is responding as the victim in the "power game triangle" to use transactional analysis terminology (Cornelius and Faire, 1989). Although this is only a hypothesis which would need testing, the forestry profession in its large part continues to consider that "nothing is wrong with forestry", rather the problem comes from the public misinformation and manipulation by "dark greens", political manipulation and vote seeking by politicians and economic rationalism. The fact that student enrollment numbers are falling in many countries, is perceived as due to the image problem (bad press in the media for example) rather than to the fact that maybe the training offered does not appeal to new generations of students.

From reductionist forestry to participatory management

After independence, newly formed states and governments depended on the exploitation of their natural resources including forests. This was certainly the case in India where the focus was on generating income for development. India went through an "Age of Commercialism" as coined by Hobley (1997) with the 1952 National Policy reinforcing the right of the state for exclusive control and management of the forests.

However in the 1970s and 1980s, the oil crisis and increased deforestation, with its increased environmental threats, favored the emergence of new concepts like farm forestry and social forestry. The development of plantations of fast-growing species (mostly exotics) on agricultural land to satisfy the fuel needs of local populations was seen as the solution to energy independence. As foresters developed village woodlots with or without villagers’ labor, knowledge or understanding of the program, new issues and problems came to light. The unresolved issue of ownership and distribution of benefits of this new resource created more conflicts within and with communities. The marginalised groups, women and the poor, often lost access to valuable resources. Improved land became a commodity and valuable common land was encroached and appropriated by the powerful elite. At maturity, the trees were sold for small timbers rather than for fuel wood. The poor still depended on the natural vegetation for their fuel wood supply. Suddenly, although foresters knew how to raise plantations, the success of the enterprise did not depend on technologies any more but on the ability to understand and deal with social and political issues.

In the broader picture, it was becoming clearer that conventional theories of economic development were not delivering expected development performances, and more people sensitive approaches were promoted in the agriculture sector.

Also in industrial countries, the civil society’s awareness of environmental issues and interest in taking part in natural resource management at a meaningful decision level, has become stronger.

In India the recognition of these issues has led to the Joint Forest Management policy. JFM legalises contractual arrangements between the forest department and local village forest committees for the management of degraded natural forests. Local institutions are responsible for making and implementing management decisions which will benefit the village, while respecting basic environmental rules. The forest department officers offer technical advice and supervise the implementation of the management. In other countries like Australia, through the regional forest agreement process (which involved many stakeholders groups in putting forward a series of options for land uses), more forests have been put into the National Parks Estate forcing the industry to expand its activities onto private owned land. This shift poses new challenges to foresters, as growing concerns from rural Australia are questioning the physical expansion of plantations into the agricultural landscape. Forestry agencies can no longer operate as separate entities within the state, and foresters now require new skills as their daily routine is increasingly encroached by community liaison type activities. The emergence or expansion of participatory models of forest management (described as co-management, adaptive co-management, community forestry, social forestry, participatory forestry) not only poses questions about the professionals skills and ability, but also poses the challenges of operating mental shifts. It is no longer meaningful to teach foresters new skills within a reductionist paradigm. However, it becomes urgent to develop an education system which promotes a holistic approach to forestry. Too often foresters have a restrictive vision or understanding of what multi-disciplinarity or inter-disciplinarity may entail. For Dogra (1994-5) "Forestry is a multidisciplinary area consisting of forestry subjects and many supporting sciences, of which only relevant ones are used to develop technologies and packages practices, needed to
solve forestry problems.” Although it has been increasingly recognised that environmental problems are as much political and social issues as technical ones, Dogra’s statement confirms that the thinking within Indian forestry has not yet evolved.

**Forestry as a discipline or as a vision?**

The implementation of Joint Forest Management has not only been about involving communities into the management of their forests but also has had much wider implications for forestry.

The involvement of communities has implications for the objectives of management, decision making processes, management practices, and the transfer of skills. Practitioners not only need to understand basic sociological principles and master basic communication skills (see Box 1). It is also important, as managers, to understand the bigger picture, the whole system, but also to implement flexible locally adapted management regimes. Typically, practicing foresters see themselves as implementing policies decided outside their control and this reflects the hierarchical nature of the many forestry sectors and agencies. A more holistic approach to forestry not only challenges the power relationships between the forestry sector and the rest of the community but also the power structures within forestry. Equipping foresters with new skills will not change things very much unless the forestry establishment changes and on the ground foresters are given more opportunities to be involved in the debate as active players rather than as technical implementers. A shift from more conventional approaches to forestry towards more holistic ones requires changes in four major areas (see Box 1): change in objectives, in decision making systems, in management practices and in human resource management. As the forestry sector expands on private land and as the general community expects to have a say on how state forests are managed, a different outlook has to be developed. Landholders may want to be involved in new technology development, communities may decide to value their forests differently, and multifaceted extension and communication strategies may need to be developed. It is therefore crucial for professionals to be flexible and open, but also to be able to comprehend the complexity of the picture as well as to be given more freedom to operate by their organisations.

In discussions which took place in Xuan Mai Forestry College in 1998 concerning the introduction of social forestry courses in the overall forestry curriculum, one particular session lingered around the question as to whether social forestry should be developed as a discipline along other forestry subjects or should be conceived as a new vision for forestry. Should training institutions in Vietnam produce a new breed of foresters with a different outlook or should they produce conventional ones with new skills? On that day it became clear that no new vision would transform forestry as yet.

**Box 1: Changes in Forestry Practice**

<table>
<thead>
<tr>
<th>Conventional approach</th>
<th>New approach</th>
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<tr>
<td><strong>Objectives:</strong></td>
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<tr>
<td>Revenue focus</td>
<td>Resource focus</td>
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<tr>
<td>Production focus</td>
<td>Sustainability focus</td>
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<tr>
<td>Single product</td>
<td>Multiple products</td>
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<tr>
<td><strong>Decision Making:</strong></td>
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<tr>
<td>Centralised</td>
<td>Decentralised</td>
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<tr>
<td>Forest Department, Government Agency</td>
<td>Multiple stakeholders</td>
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<tr>
<td>Decision at higher levels within organisations</td>
<td>Decision at field level</td>
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<tr>
<td>Focus on control</td>
<td>Focus on planning, innovating, analysis and change in practice</td>
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<tr>
<td>Department’s responsibility</td>
<td>Sharing the responsibility</td>
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<tr>
<td><strong>Management practice:</strong></td>
<td>Management practice:</td>
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Conclusion

Although separate individuals may have divergent opinions about what forestry is or should be, it seems that on the whole a growing number of people are interested not only in having more control over the decision making process but also would prefer to see a "different kind" of forestry practiced. This in turn does not just mean that the wider community expects to dictate to the forestry profession what they should or should not do but rather that the community recognises that various sections of the society can play complementary roles in forest management. In their latest publication on "Shaping Forest Management: How coalitions manage forests?", The British Department of Foreign International Development (1999) insists that the three sectors (state forest service, private sector and civil society) all have a role to play in the three different capacities of "enablers", "deliverers" and "users". To be able to endorse those roles the forestry profession needs to consider changes in its practices and especially, in the education of the new generation of foresters. Most of all, the challenge will be to foster the development of a genuine collaborative practice to support the emerging conviction that state forests ultimately belong to the "community" from which in increasingly direct ways the forest management agencies derive their mandate.

Despite changes in the field, it seems that the forestry profession through various means (accreditation bodies for eg.) still puts pressure on training institutions to continue the reductionist tradition, preventing the new generation of foresters to be suitably equipped to take on the new challenges. Foresters no longer can operate in isolation and (in most countries) no longer are they part of a powerful elite. As actors in the broader community have voiced their disapproval at the forestry practices, new models of forestry have emerged where foresters and local communities try to work together in the management of natural resources. However the decolonisation of the minds will be the biggest challenge as most training institutions in forestry still follow a management model based on quantification and technocratic approach. Introducing new courses in the forestry curriculum like social forestry for example is not sufficient. What is needed is a forestry curriculum (or of course locally adapted curricula) removed from the reductionist paradigm closer to a more holistic or integrated one.

References:

Amery, C.F." On the relation between District and forest officers", The Indian Forester, 1, 3, 294-298.

Boomgaard, P. "Forest management and exploitation in colonial Java, 1677-1897". Forest Conservation and History, 36, 4-14.


Dogra, P.D. & R.C.Dhiman (Ed) Forestry research and education in India, India National Science Academy, New Delhi, 1994, 275pp.


Ribbentrop, B. British forestry in India, Calcutta, 1900.

Schlich (1878) "On the Working Plan" The Indian Forester, III, 1 1-19,

Shields, D., 1994. Initial Project Process Development workshops, Western Ghats Forestry Project process support Team document, No 16, Karnataka Forest Department and the ODA.


Society for the Promotion of Wasteland Development (1992) "Joint Forest Management: concepts and opportunities" In proceedings of the National Workshop at Surajkund, August, SPWD, New Delhi.
