

III. Management of Forests and Wildlife

From the various written accounts of the forest cover in the Doon Valley, it is obvious that the valley was endowed with a rich forest cover. The limited domestic requirements of the sparse population for forest products was easily satisfied without any serious degradation. This rich forest cover motivated both the Garhwal kings and the Gorkha occupants to initiate fellings to sell timber in the growing markets outside the valley.

The stability and richness of any forest ecosystem is reflected in the richness of both its flora and fauna. Similarly, the hydrological stability of the forests is reflected in the aquatic fauna in the streams and rivers. The following description by Baker (1886) amply describes the richness of the forests and the early symptoms of decay:

The Doon is singularly rich in both animal and vegetable life. Wild elephants abound at certain seasons of the year in the Siwaliks, which are also a favourite haunt of tigers, panthers, bears, leopards, and hyenas. Sambhar, chital or spotted deer, four-horned deer (chau-singha), barking-deer (khakur), hog-deer (parha) used to be found in almost incredible numbers, but have much diminished of late years. Wild pigs swarm in the forests, as also monkeys and langurs. Porcupines are common, and several kinds of wild cats..... The rivers swarm with fish, the chief kind being Ganga mahsir, which in the Ganga and Yamuna attains enormous size, sometimes reaching 90 or 100 lbs. Other kinds are trout, saul, chal, giri, rohu, kalabans, and the gunch or fresh-water shark.....the native authorities enumerate in all twenty-four species of fish, but there are certainly many more.

Institutional Encouragement of Deforestation

The above description is that of a rich forest ecosystem in the initial stages of human intervention. The forest felling system, initiated by the Garhwal kings, was further encouraged when excise duty on timber was

discontinued following the British annexation in 1815. It was, however, reintroduced in 1819 and this resulted in an annual revenue earning of about Rs. 4,000. The forests were considered from then onwards to be a source of considerable revenue. Five years later, in 1825, the revenue more than doubled to the figure of Rs. 8500. At this time, the auction system for contracts was introduced to further boost the revenue and it again doubled to Rs. 16,000 in 1830 and by 1833 had gone up to Rs. 25,350. In 1839, the forests were leased to a local contractor and the annual revenue rose to Rs. 33,500, thus increasing the income by a factor of 10 in 20 years. This quick financial gain, however, was not a free lunch because it was paid for by the forests. The picture of the forest degradation that resulted is recorded in the following statement of Williams (1874):

Everyone continued to hack and hew away at the trees as they pleased, only paying certain dues to the farmer, in the event of the wood being exported. The latter made his own arrangements to secure the collections at the different passes. Reckless waste was inevitable, and the fine sal forests began to disappear rapidly. The absence of conservancy was absolute. The district still abounded in fine trees 100 or 200 years old and upwards. All these fell before the axe and probably the rest would have gone with them had the roads been a little better. The consequence of this bad system is most perceptible in Western Doon.... The annual revenue from this source varied from Rs. 80,000 to 100,000, an income dearly purchased, for the destruction was something incalculable.

Surely, the remarkable increase in annual revenue from timber export was dearly purchased. The rapid depletion of timber, resulting from the institutional encouragement of felling, soon became the issue of two major policy debates. The first concerned forest clearing for land grants that encouraged Europeans to come to the Doon Valley and settle down for the purpose of developing agricultural farms. The first nine such land-grants covered an area of about 20,000 ha. The far

reaching effects of this perception of forests as a resource portrayed by this single administrative decision has no parallel in the valley's history. In spite of the fact that the Europeans were gaining from the grants, Baker (1886) did not refrain from arguing against them and in favour of keeping the forest cover intact even from an economic point of view. In his settlement report he wrote:

forests in themselves constituted a property of great value.. There can be no doubt, taking a purely financial view of the matter, that the State parted with its rights in the waste-land grants for a very inadequate return... Had these lands been retained as government forests, far larger sums would have been paid into the treasury on their account... From an economic point of view all forest would probably yield a better return, and forests, not more cultivation... are the great desiderata of the country.

The forests, however, were also unable to sustain the uncontrolled exploitation. The forest department that was established in 1855, mostly remained a revenue collecting body and did not pay any attention to systematic conservancy. The result was obvious when in 1867 forest productivity dwindled and the revenue dropped below Rs. 23,500. Therefore, the strong economic arguments worked in favour of forest conservation. This was finally introduced about 10 years later when reservation of the forests took place following the passing of the Forest Act in 1878.

There was yet another factor operating that led to widespread exploitation of the village forests. This was related to the changing land relations and ownership of the village forests. The village forests were, before the British annexation, managed for local needs' satisfaction by the communities. At the time of the third settlement in 1825 the *zamindari* (landlord) system of land relations was established and this gave the ownership of village forests to the *zamindars*. The arrangement was, however, changed to the *ryotwari* (cultivating proprietors) system at the time of the fourth settlement in 1840. In this way the cultivators, in one fell swoop, became full-blown proprietors of the land and the *zamindars* lost their position. Although from the point of view of ideals and principles the change was good, it did not succeed in practice. In 1845 when a revision of the settlement took place, the

British Government reintroduced the *zamindari* system, and the control of the village forests went back to the *zamindars*. There was, therefore, a reintroduction of a social hierarchy that had not existed for a period of time.

The new inequalities implanted in the region by the British Administration, through the re-introduction of the *zamindari* system, caused rapid deforestation of the village forests. This accounted for over 80,000 acres of forest that had been maintained on a sustainable basis under community control. In this new process the village forests became the property of the *zamindars* of the villages to which they appertained. These *zamindars* became the focus of economic and political power and completely replaced the community organisations and their control over village forests. Thus:

in Malkot ilaqua (region) containing 31 villages the cultivating proprietors lost their power... a disability due to the aggression of the superior sayana (contractor), Surjan Negi, a man of capital and influence (Walton 1911).

Surjan Negi's capital and influence was, in turn, derived from the fact that in 1822 the forests in the valley were farmed out to him. The economic power of the contractor added to the socio-political power of the *zamindar* completely removed the responsibility of the *sayanas* for the sustainable management of common forest resources. Hence, the control of the community was replaced by the control of the *zamindars*, and the *zamindars* were only:

too anxious to make money as fast as possible out of their new acquisitions. In pursuance of this policy they prohibited the tenants from grazing and cutting wood in the village forests and sold the latter to charcoal burners who completely denuded the hillsides (Walton 1911).

Ross (1886) gave a very interesting quantitative picture of the use of the private forests for timber supply and of the mango groves for the supply of packing cases to the tea industry. He reported private timber sales to be about Rs. 750,000 which was more than the entire land revenue of Dehradun tehsil for over two decades.

The above picture of the relatively uncontrolled and free felling of trees continued until the beginning of the 1870s. This situation was due to two important management problems. The first was the difficulty of monitoring the forests. It was only during the making of the seventh settlement report (1869) that maps of some professional quality, demarcating forest boundaries to some degree of accuracy, were made available by the Survey Department. This new monitoring ability was invaluable for locating gross encroachments as well as for clearly locating, and accurately levying taxes on, the private forests. The other problem was the institutional limitations to the planned working of the forests to conserve their renewable resources, or at least their timber potential. The Forest Act of 1878 was used to ensure that the reserved forests maintained their revenue potential. It is interesting that no attempt was made to conserve animal life. This was probably because of there being no easy revenue for this other movable forest product. Although conservation of wildlife was generally ignored in the management of reserved forests, Baker (1886), in his settlement report, argued strongly for wildlife conservation:

The whole valley of the Doon forms one of the most splendid natural preserves in the world. Wild animals, and what is termed "game" literally swarmed till within the last decade or so... Allowing indiscriminate shooting as at present operates in regard to animals and game in much the same way as indiscriminate felling on the forests. So long as animals were plentiful slaughter was excessive... European sportsmen, native shikaris, and men of the Gorkha regiment are always in the forest... It is only in Indian Government forests that all are allowed to slay without limit, and that the principle generally acted on is to let nothing escape if possible. I have heard of 20 sambhar stags being shot by a single sportsman in a week, and 70 or 80 chital stags in a fortnight, not many years ago... A good chital stag is now seldom seen. Sambhars are still more rare. Pea-fowl are getting quite scarce, and the black partridge also. At the present rate of destruction there will in a few years be no game left except in the closed forests.

This aspect of environmental management was not, however, of any immediate concern, but in course of time the realisation of the importance of wildlife management led to due recognition with the establishment of the Rajaji National Park. The forest cover of Doon Valley during the time of reservation is given in Fig.5 (page 16). It was published by the Trigonometrical Survey of India in 1887 and in all probability this is the earliest authentic map of the Doon Valley forests notified in the Gazette of February 17, 1879. The reserved forests in the Doon Valley are located all along the north-facing slope of the Shivalik range and some patches are in the Doon proper. The temperate forests on the south-facing slope of the Mussoorie hill may have existed with good ground cover at one time, but the absence of a significant stock of commercially attractive species may account for the lack of interest in their reservation. Consequently these temperate forests dominated by oak (*Quercus incana*) were deforested by heavy lopping to satisfy the fodder requirements of an expanding rural economy.

The Imperial Forest School was established in Dehradun in 1878 to train foresters, throughout the whole of British India, to manage the newly acquired areas of reserved forests. As a result, the Doon Valley forests became its training grounds and the nearly 180,000 acres of reserved forests were brought within its sphere of interest. The first ever working plan for the management of these reserved forests was written by Fernandez (1887) of the Forest School. This fifteen year plan set the trend in forest management and was a prescription for selective regeneration based on the removal of damaged, deformed, and unsound trees resulting from the previously uncontrolled exploitation.

The principle of controlled and selective felling continued to operate, as the only strategy for improving forest stocks, until 1933 when large scale afforestation through plantation was introduced for the first time. In Sen's Working Plan (1942-50) a special plantation working circle was introduced. The system adopted was clear-felling with artificial regeneration. Important plywood species such as semal and tun supplemented by khair and sisoo were to be raised in plantations in response to the demand for timber suitable for the manufacture of plywood and matches. The demand changed in 1962 when the growth of pulp-based

industries led to the propagation of species such as *eucalyptus*.

The increasing demands of the pulp based industries played a significant role in changing forest resource management. Earlier methods of plantation such as the *Taungia* gave way to newer labour saving processes to simplify management and to reduce exploitation costs, especially in the case of species on short rotation that are suitable for paper pulp, such as *Eucalyptus* (Singh 1980).

The choice of areas for artificial regeneration was not guided by ecological considerations. In the beginning, open patches in the *sal* areas were planted with trials of various species, mostly *sal*, *teak*, and some *bamboo*. Later on, from 1963 onwards, the open miscellaneous forests were used for plantations and this involved little felling of standing trees. Later there were some attempts to replace "uneconomic" species with "economic" ones through clear felling. Historically, therefore, the modern scientific management of forests concerned itself primarily with increasing the yield of species with high market value and demand.

Emergence of Conflicts over Forest Resources

The reservation of the forests, being guided by silvicultural considerations only, instigated important conflicts over villagers' access to the reserved forests. During the early years of conservancy, the forest department denied that villagers had any rights at all to these forests and a conflict arose. The then Superintendent of Doon, H.G. Ross, was called to report on this matter and he took a stand opposite to that of the Forest Department. Citing that the most extensive prescriptive rights of grazing and fuelwood collection had existed from time immemorial, Ross recommended that the villagers "shall have the right",

- to collect headloads of fallen and dry wood,
- to graze a specific number of animals on payment of prescribed rates.

The presentation of Ross led to a long debate on the villagers' access to the reserved forests. The forest department was partly successful in reducing villagers' access to the extent that in so far as the final wording of notification No.702, of July, 1880, stated "villagers shall be

permitted" instead of "shall have the right". It was a privilege for the people and not a right to have these facilities in the reserved forests. The contradiction, not typical of Doon Valley alone but of the whole country, exists even today more than 110 years later, probably in a much more intense form. Over the years the objectives of forest management did not internalise these basic management issues of the biomass needs of the local people. A systematic approach only evolved for the quantification of growing stock and the encouragement of commercially valuable species.

This basic commercial objective of India's forest management, as well as the marginalisation of local needs, was the reason the people of Garhwal started the world-famous forest movement called Chikpo in 1973 (Shiva and Bandyopadhyay, 1988). The impact of this movement was that commercial green felling of the Himalayan forests in Uttar Pradesh, including the Doon forests, was stopped in 1982 for a period of 15 years. Recognition of the ever-increasing biomass needs of the local people has remained marginal in the official working of the forests in Doon. Table 3 (page 20) projects a picture of this commercial bias of forest management by presenting the relative amounts of wood and firewood extracted for commercial and local (free and concessional) requirements during 1959-78. The lack of recognition given to the increasing needs of the local people, both urban and rural, for forest biomass is reflected in the relative proportion of commercial and concessional wood and firewood extracted from the Doon Valley forests.

A more realistic appraisal of the challenges facing forest management in Doon Valley will clearly reveal that over the century there has been a fundamental change in the main use of the forests. How the scene has changed, within a 100 years, under the compulsion of specific situations, becomes evident upon comparison of two statements, one from the first working plan of Fernandez and the other from one of the latest working plans drawn up by Mishra. Referring to local requirements, Fernandez (1887) wrote:

Local requirements are comparatively insignificant, and are to be of great extent met from private forests, the aggregate extent of which is very large. In the Reserved Forests grazing is generally light, and except

within a radius of 10 miles round Dehra and inside a belt of about eight miles along the Ganges, the demand for firewood is insignificant, and even within those areas the supply is far in excess of the demand.

On the other hand Mishra (1968) presented a drastically different picture when he wrote:

Grazing is extremely heavy all over the forests and the pressure is increasing from year to year. The areas neighbouring the habitations are the worst sufferers, having been reduced to a stage of irreversible ruin.... Mornings and evening one can see endless processions of these decrepit cattle all along in the Doon Valley vanishing into the nearest tree line and emerging after an indifferent browsing and grazing in the forest floor. Along with them there is another procession too, even more pathetic than that of the beasts. This is the procession of "head loaders" men, women and children, old and young, firm and infirm, carrying outsize burdens of firewood and fodder down to their villages. The small farmer and the landless labour supplement their income by working in the slack

season with forest contractors, in departmental forest works and by selling headloads of firewood or fodder to the more affluent farmers or to the urban dwellers in the new colonies and settlements. The latter has become a popular and profitable employment with the rise in the costs of firewood and the steep rise in its demand.

Both the above quotations end-up with the same word "demand" but with different connotations. This precisely summarises the changed requirements forest management faced in the Doon Valley over the last 100 years, during which period the basic challenge of management in the forests changed from that of limiting the internal felling process for timber to limiting the external collection of non-timber biomass and grazing.

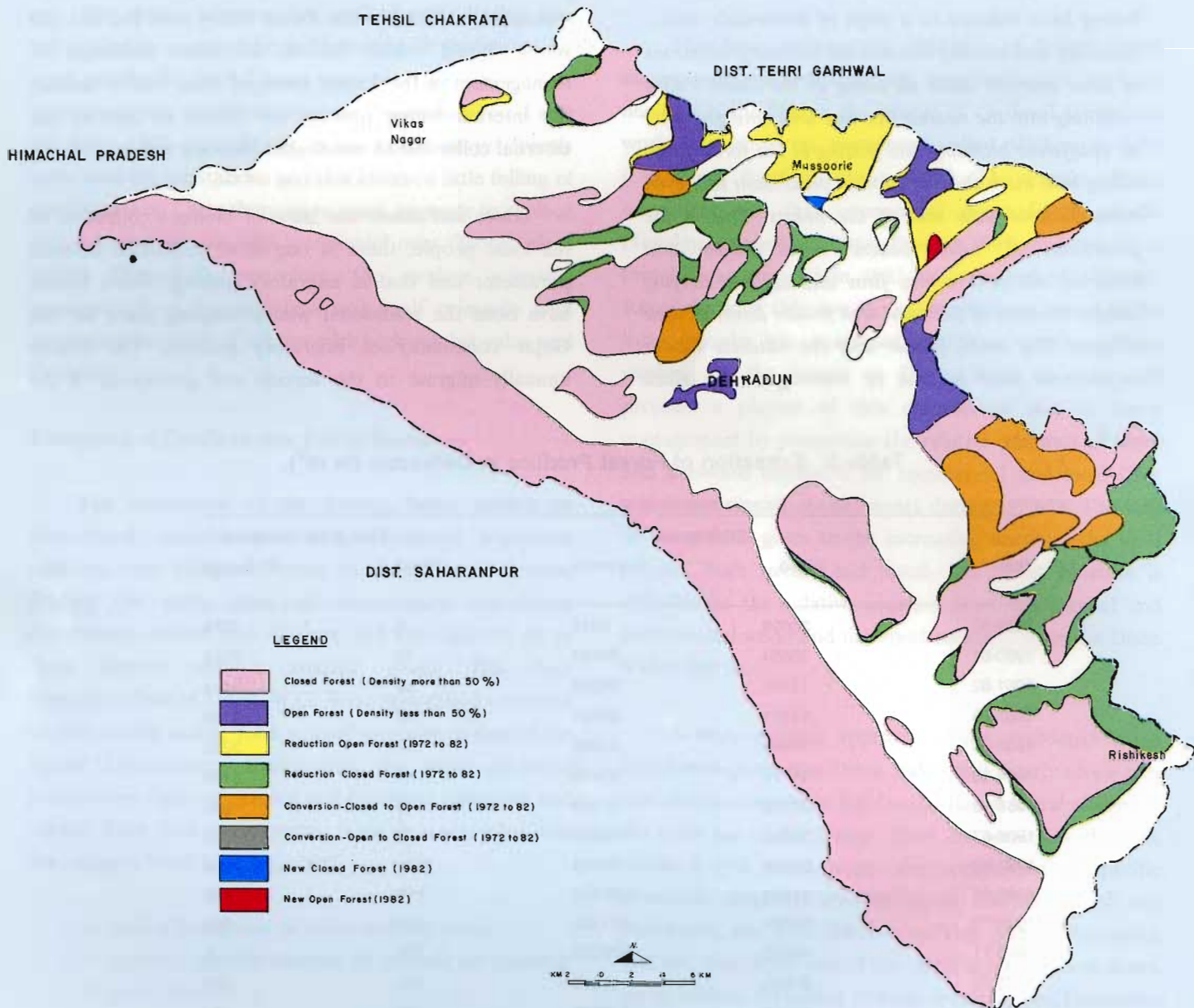
Over and above the issue of biomass collection by the local people, there is one more important external parameter and that is migratory grazing. Doon forests have been the traditional winter-camping place for the Gujar community of migratory graziers. The Gujars annually migrate to the forests and grasslands of the

Table 3: Extraction of Forest Produce in Dehradun (in m³).

Year	Commercial		Free & Concessional	
	Wood	Firewood	Wood	Firewood
1959-60	26698	9515	6	4376
1960-61	20654	29181	13	2532
1961-62	19514	56056	52	3414
1963-63	13111	62564	150	3166
1963-64	15456	51326	135	3232
1964-65	34772	63490	111	3155
1965-66	37359	37359	0	983
1966-67	32788	76067	2	28
1967-68	26926	54303	N.A.	N.A
1968-69	41864	187493	115	166
1969-70	41864	411380	125	693
1970-71	45620	176002	175	8
1971-72	51855	125025	129	378
1972-73	34043	115746	108	142
1973-74	31023	91556	35	97
1974-75	31342	83434	126	84
1975-76	40777	89706	50	530
1976-77	34053	85089	85	173
1977-78	39737	N.A.	108	563

FIG. 6
CASE STUDY - DOON VALLEY
STUDY-FOREST COVER

(based on Anon, 1988b)



upper Himalayas in the spring, that is April, and return to the forests of the valley at the beginning of winter, in November. With the exponential increase in the urban population of the valley, there has been a tremendous increase in the daily milk requirement. More than 100 milk vendors make daily trips to the interior forests and collect milk from the various Gujar camps. The demand has been so high, and the business so lucrative, that a part of the Gujar population now stays in the forests all the year round. This close link-up of the urban milk demand and the interior forests of Doon has become a matter of great significance and concern in the management of the forests.

The existence of the Gujars in the Doon forests was always recognised as an integral part of the working of the forests, although to what extent such considerations have succeeded in protecting the forests from excessive damage is an open question. Like the headloads of firewood, the huge amount of milk has become a product that is extracted daily from the forests. To accommodate the pressure exerted by the Gujars, grazing circles have been kept separately for them in all the forest working plans. However, the famous forester Champion (1932), while making his working plan for the Doon forests, lamented that:

The management of this (grazing) circle was not very successful. There was insufficient grazing of leaf fodder for the Gujars, who therefore spread all over the neighbouring forests and did a great deal of damage by illicit lopping. Lopping rules were laid down but were often not followed.

The problems of monitoring the lopping by Gujars multiply because they stay in all the remote corners of the forests and they do not have any direct dependency on any particular forest area. The buffaloes belonging to the Gujars produce much more milk than those of the local villagers. Berkmuller et al., (1987), who studied the local pressure and people's dependency on the forests of this area, indicated that:

the incentive to run livestock in excess of subsistence needs is high because an additional milking buffalo yields a net benefit of about Rs. 175 per month while the additional effort expended per animal is comparatively low.

According to him:

increase in stocking density may not always be shown in the range register and even the recorded stocking density is often above the prescribed limits of safe grazing and lopping capacity.

It is thus very clear that increased urban industrial growth has direct material dependence for its survival on the forest resources of Doon Valley. The current problems of forest management and threats to the forests are very different from those of the early British days when strategies for forest management were developed. Another important element in this respect is the takeover of the private forests. This happened with the abolition of the zamindari system in 1952, when large areas of forest were cleared in an attempt to prevent them from being taken over by the department of forests. Thus, the little buffer that existed between local pressure and the reserved forests disappeared. Forest land was also cleared for a number of projects, and this led to a total loss of 15,322 hectares of forest between 1973 and 1983 (Anon, 1988b).

The situation became even more tight with the formation of the Rajaji National Park to which almost half of the Eastern Doon forests were transferred. In addition to this clear and quantitative loss, there have been serious changes in the quality of the forest cover, Fig.6 presents the state of the forest cover as of 1983 and important changes in the period from 1972, and it exemplifies the destructive impact of the urban and rural domestic pressure on the forests and the nibble-effect (Moench and Bandyopadhyay 1986). The study of Berkmuller et al. (1987) further exemplifies the nibble-effect on a much higher scale in the case of the Rajaji National Park, that encompasses the whole of the Eastern Doon forests on the North slope of the Shivaliks, (Fig.7 page 28).

The co-existence of large urban settlements and rich forests creates problems for forest management in yet another way. Lured by the huge profit in wildlife poaching and fire wood smuggling, armed robbers, reportedly with influence in the social hierarchy, made the Doon forests their area of operation. The situation took a serious turn for the worse in the early 1980's. Incidences of the murder of, and grave injury to, forest

guards came as a severe blow to the morale of the protection staff, while forest offences went on. This constituted a significant challenge to forest management. Table 4 presents a break-down of recorded forest offences in four forest blocks as reported by Berkmüller et al. (1987).

These offences and the geographical and social isolation of the forest guards have resulted in demoralisation and this has serious implications for forest management. The isolation has further reduced the scope for the traditional participation of the villagers in fire fighting activities, something that was spontaneously available just a few decades ago. The overall picture would have been gloomy but for instances of exemplary courage shown by groups of unarmed village women who were inspired by the spirit of the Chikpo movement. In December 1983, in the forests near Rishikesh, one such group of women challenged a large gang of armed wood smugglers and captured felled timber worth Rs 1 million along with the whole transportation system. This spirit of ultimate identification of the people's interest with the safety of the forest seems to be the only way to save the situation in the Doon Valley forests. The narrow silvicultural basis in the working of the forests needs to be replaced by a broader human understanding of the links between local forest resource needs and local forest resources, and the linkages between these and the

interests of the rural people. In a free and democratic society local people should be involved in sharing the responsibility for the proper management of natural resources, but this can be achieved only by giving them both responsibility for and access to these resources. New experiments in forest management in the neighbouring district of Tehri can provide insight for this (Bandyopadhyay and Shiva, 1988a).

In highly urbanised and populated valleys such as the Doon, forests cannot be preserved and improved without paying serious attention to the resolution of all the above mentioned conflicts. Thus, the enlightened participation of the local people in the enhancement and protection of the forest resources must become a valuable tool in the future management of the Doon Valley forests.

Ever since the British annexation of the valley, there has been a substantial amount of apathy among the common people concerning forest conservation. The current realisation of the vital need for people's involvement in forest management necessitates a reversal of the policies, and it is now necessary to closely examine the achievements in instances where the management of forest resources has become broadbased. In this respect insights gained from the various efforts at forest protection and afforestation are important as a starting point.

Table 4: Number of Offences in Doon Valley Forests by Range, Type, and Year

Forest Range	Type	1982	1983	1984	1985	1986
Asarori	A	5	5	NR	3	4
Lachiwala	A	1	18	9	4	2
	B	NA	NA	10	10	2
Kansrao	A	16	7	4	9	3
	B	NA	NA	44	58	55
Motichur	A	26	33	37	36	24
	B	NA	NA	NA	71	20

Type A includes poaching of wildlife, carrying firearms, laying traps etc.

Type B includes poaching of timber, fuelwood theft, illegal grazing etc.

Probably no other part of India has such a coexistence of large stretches of good forests and highly concentrated human settlements. The fact that the forests of Doon Valley have remained in their present form, which, apart from stretches along the northern slopes of the Shivaliks and pockets in the Rajpur, Malkot, and Lachiwala areas, are in excellent condition, is to the credit of the forest department, and in particular to its forest guards who constitute its lower level staff. The repeated demands for institutional reorganisation of forest administration are rooted in the cognitive limitations of the ideas that govern the functions of the department and not in the limitations of commitment on the part of its functionaries. The institutional alternatives suitable for forest management have been tried out extensively in the afforestation programmes of the valley, an account of which merits separate description.

Lessons from Afforestation Activities

The dependence of the people of the Doon Valley on forests, directly for biomass and indirectly for microclimatic amelioration and hydrological stability, is well recognised. The need to enhance the forest cover has been felt for a long time. However, it was never clearly articulated until the litigation on the environmental impact of limestone quarrying. This practical challenge to afforestation came rather suddenly, in March 1985, with an interim order from the Supreme Court closing some lime stone quarries permanently and advising early environmental rehabilitation of the areas damaged by quarrying. In the context of the overall areas of forest crisis and the location of the main forests, the closed quarries were not central. However, the afforestation activities undertaken in these areas provided a much needed impetus to similar programmes.

Several methodologies, for forest protection and afforestation programmes, have been followed in various parts of the valley, and the individual strengths and weaknesses of these need to be analysed in order to develop optimum methodologies for the successful enhancement of forest wealth on various types of land. These afforestation programmes have been undertaken by:

- the forest department,
- the ecological task-force,

- other government agencies,
- the people themselves.

and an analysis of their achievements is given below.

The Forest Department

Afforestation has constituted an integral part of the activities of the forest department for quite some time. These activities were, however, within the reserved forest areas. Within the last few years social forestry programmes have tried to make new plantations, mainly of Eucalyptus, on the roadsides and government wastelands. The colonial legacy of mistrust between the people and the forest department, generated by the reservation of the forests, still continues to a large extent and makes the task of the forest department much tougher and their work less efficient. However, the forest department embodies the richest silvicultural experience and has the organizational network for raising nurseries that could be of immense value to afforestation programmes. The general observation that the survival rate of departmental afforestation programmes is low is more or less correct. However, there is tremendous scope for success if the antagonism of the people can be converted into cooperation and the factors that contribute to the low success rate of the department's programmes are removed.

The Ecological Task-force

An ecological task-force was raised in 1982. It induced a few retired army personnel, mainly from the hill areas of Garhwal and Kumaon, to undertake afforestation in the Himalayas. Following the Supreme Court order of March 1985, the environmental task force was entrusted with the task of afforestation of the Bhatta-Kiarkuli area around the Mussoorie-Dehradun road that was badly damaged by the quarries.

The discipline and ability to undertake hard work, that is the ethos of the army-culture, were very useful in the functioning of the task-force. The associated tendency to blindly push one's ideas into programmes that involve many other sections of people was, on the other hand, a major cultural obstacle. This led to initial misgivings and friction between the taskforce and the villagers. With the

mediation of advisers, and some restraint on the part of the people, the taskforce has shown a fair measure of success. However, the fact that the unit cost of plantation is abnormally high makes this methodology appropriate only for afforestation in sensitive watersheds where there is heavy seasonal rain. In the case of afforestation for local demands, such costly methods may not be advisable.

Other Government Agencies

There have been a number of organisations active in forest protection and afforestation in the Doon Valley. Under the organisation of the local *Nehru Yuva Kendra*, students from various parts of the country have been spending a month or more in the Doon Valley, through the National Service Scheme, since 1985. They are involved in fencing, digging, and planting of saplings in an area near Sahasradhara, a well known tourist spot in the Doon Valley. Such programmes, obviously, do not have the same impetus as the task force, nor can they develop a self propelling model for reafforestation. However, the involvement of hundreds of young students is a positive achievement in itself, as well as providing education through practice. The efforts of the National Service Scheme have encouraged local students to take up similar activities.

People's Afforestation Programmes

The above afforestation methodologies have been successful in a limited spatial context. A macromethodology for the greening of the Himalayas in general cannot be developed directly from these experiences. Often these external involvements, however well meaning they may be, lead to an alienation of the programmes from the local people in general. Without the involvement of the local people, who alone can maintain and use the forest resources, the challenge of afforestation cannot be faced efficiently on the scale on which it is required. In the absence of this involvement the local people will only be forced to become an uncontrollable agent of destruction, while the well meaning efforts of others will merely generate non-replicable instances of success.

In the nooks and corners of the valley, people have been involved in numerous, little known afforestation activities, mainly guided by some enthusiastic leaders at

the village level. From the point of view of management, these little known efforts, that have no access to the media, are of fundamental importance. What is not surprising is that, probably due to reasons beyond their control, government agencies often concentrate their funds and efforts on the few external but visible efforts, at the cost of ignoring the many internal and invisible ones. The success of large scale and rapid afforestation in Doon Valley, as in many other parts of the Himalayas, should totally depend upon the mobilization of the ideas and involvement of the local people only, if the problem has to be tackled realistically. Otherwise all efforts will result in expensive and well advertised success stories for afforestation methods that do little to contribute to the control of overall deforestation. This typical problem of the management of plantation and afforestation is summarised in the following editorial from a local newspaper of Dehradun (Himachal Times, 1982):

Challenges in the Management of Forests

From the accounts given in this chapter, it is evident that institutions for forest management evolved a century ago and were propagated throughout India from the Doon Valley. The Doon is, itself, in need of innovations to cope with the changed characteristics in the area. Within its limited area a variety of universal challenges in the management of forests have emerged. These various facts have been classified into three categories for the case of India (Shiva et al., 1985). Forest management in the Mussoorie hills is important from the perspective of soil erosion control and regeneration of springs. In Mussoorie, the villages around the tourist town exert another significant pressure on the forests. That is the pressure to provide fodder for the milk producing animals. A quantitative estimate of the milk industry around Mussoorie is available in a study of the *Mussoorie Grameen Vikas Samiti*, (1984).

The important temperate forests, especially the oak (*Quercus incana*) forests, both in terms of socioeconomic parameters and specific environmental parameters have not received due attention in the formal management of the Doon Valley forests. This lack of a mountain perspective runs through all the Forest Working Plans. It has resulted in the exploitation of the oak forests even in ecosystemic conditions that are highly favourable to their quick growth. This potential is visible in the health of the

well protected forests around the Woodstock School in Mussoorie. It is only recently that ecological and local-domestic utility of the temperate forests in the Doon Valley has drawn serious attention.

The success of the tree planting programme on the denuded slopes of the Mussoorie hill, undertaken by the ecological taskforce (Ramchandani 1987), provides an excellent example of institutional integration in afforestation. In this case a major institutional shift occurred when the main responsibility for large scale tree planting was given to the ecological taskforce. The Forest Department supported the activity by supplying seedlings. The interaction of the taskforce with the local villagers, and the gradual evolution of an effective partnership, is an interesting lesson for forest management. The strictness of the ex-armymen and the freedom of grazing enjoyed by the villagers produced conflicts in the beginning. In due course of time, and with the intervention of the local environmental groups, the conflict eased out and the villagers accepted the strictness of the task force in the ultimate interest of the forest resource.

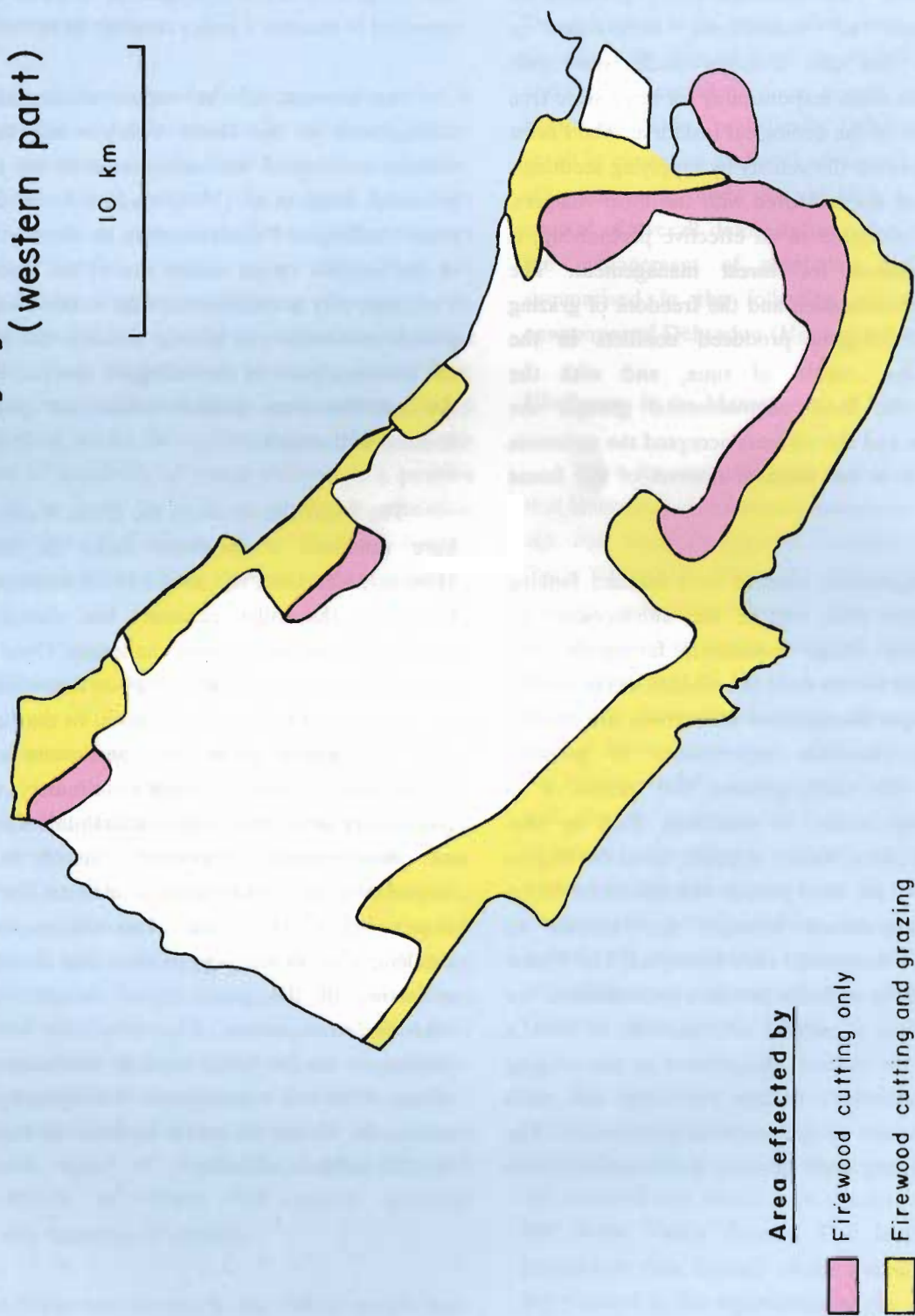
The most significant element in a forward looking forest management plan will be the enhancement of tree-cover on the village commons, farmlands, and degraded reserved forests near the villages in the middle of the valley. Major management innovations are needed to repeat the successes experienced in people's involvement in this whole process. The success of all afforestation programmes, in situations such as that prevailing in the Doon Valley, depends upon the degree of identification of the local people with the afforestation programmes. Institutional changes are needed to accommodate and encourage such initiatives. The Forest Policy (Anon 1988a) of India provides preconditions for such changes. What is needed is to provide, at least, a limited role for the revenue department in encouraging village level organisations, such as panchayats and youth organisations, to take up afforestation programmes. The emergence of strong local citizens' participations, both

from rural areas and urban areas, provides the Doon Valley with the hope that new institutions, with a more effective record of conservation and regeneration of forests, can emerge in a short time. In many respects, the challenges facing forest management in the Doon Valley represent the main challenges that exist throughout the whole of India. The success of institutional innovations and integration in the management of forest resources is expected to become a major trendsetter in India.

No account of the future challenges in forest management in the Doon Valley would be complete without mention of the management of the rich wildlife potential. Singh et al. (1989) made a detailed analysis of these challenges. The rich forests on the northern slopes of the Shivalik range, as the site of the Rajaji National Park, can play a tremendous role in the conservation of genetic resources and greatly enhance the attraction of the southern parts of the valley for tourists, especially in the post-monsoon periods when the attractions of Mussoorie diminish.

The forest resources of the Doon Valley, therefore, have remained a dominant factor in its economy. However, with time, the nature of the contribution of the forests to the valley economy has changed and has generated new management challenges. Over the last 100 years, the concept of the forests as renewable resources was not central to forest utilisation. In the beginning the land requirement of settlers, and more recently the commercial fire wood and milk requirements of the urban population, undermined the sustainability. The absence of an environmental perspective resulted in the rapid degradation of broad-leaved forests on the Himalayan slopes below Mussoorie. The current management challenges lie in the regeneration and non-consumptive utilisation of the green cover through tourism and wild-life management. The response to these new challenges can be found through the integration of the efforts of the two most relevant institutions located in the valley; the Forest Research Institute of India and The Wildlife Institute of India.

FIG.7
Rajaji National Park
(western part)



Nibble effect by Firewood Cutting and Grazing by Village Cattle