

# Community-based Natural Resource Management in the Central Himalayas

THE WORK OF DOODHA TOLI  
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## Introduction

The Central Himalayas of Garhwal and Kumaon in India are associated with the world-famous Chipko movement. As a movement in which environmental conservation and decentralised resource control were central concerns, Chipko was in many ways the philosophical precursor of the concept of CBNRM. Although the movement died down in the 1980s, several offshoots emerged and took root in different parts of Uttarakhand, attempting to translate the vision of Chipko into

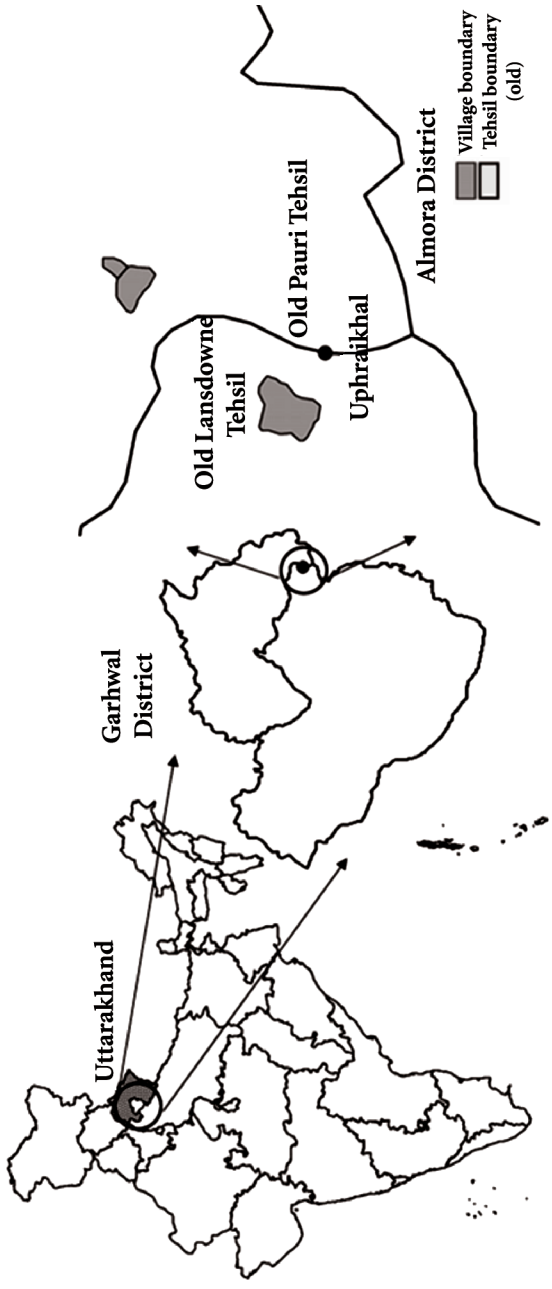
practice in different ways, inspiring local communities to take up what we now call CBNRM-type initiatives. The Doodha Toli Lok Vikas Sansthan (DTLVS) is one such offshoot. Their work exemplifies a particular approach to implementing CBNRM, namely, the idea of grass-roots voluntarism and patient, low-key work with communities over a long period using limited funds, focusing on evolving ideas suited to local needs. This case study throws light on the strengths and weaknesses of such an approach and also serves to highlight the opportunities and challenges to CBNRM-type initiatives in a socio-ecological context that is historically considered favourable to community management, but is also changing rapidly.

## Social Geography of the Paudi Garhwal Region

The Doodha Toli region lies at the eastern edge of Paudi Garhwal district, adjoining Almora district, in Uttarakhand state of India (see Figure 6.1).<sup>1</sup> This region falls in the middle Himalayas, with altitudes ranging from 1,500–3,000 m above mean sea level (msl). The Doodha Toli peak is 3,045 m high. The terrain is rugged and mountainous, the climate temperate with mild summers and cold winters (including snowfall) and rainfall around 1,500 mm.<sup>2</sup> The geology is a mixture of sandstone, limestone and metamorphic rocks, with flint and sand conglomerates (Khan and Tripathy, 1976: 7). The natural vegetation of this region is classified as Himalayan moist-temperate forest dominated by *banj* oak (*Quercus leucotrichophora*), chir pine (*Pinus roxburghii*), and at higher altitudes deodar (*Cedrus deodara*), *burans* (*Rhodendron* sp.) and other oak species (for example, *Quercus semecarpifolia*). The region is rather distinct in that the slopes of the Doodha Toli Mountain are the source of two-three major non-snowfed rivers (such as the Nayar and Poorvi Nayar), in contrast to most of the rivers in Uttarakhand that originate from the upper Himalayan glaciers.

The Doodha Toli region, as is the case in most of Uttarakhand, is inhabited mainly by the so-called ‘Hindu’ communities who speak the Garhwali or Kumaoni dialects of Hindi.<sup>3</sup> People of the two language

FIGURE 6.1  
Location of the Study Sites in the Doodha Toli Area



groups are together often termed as *Pahadis*, that is, the hill people.<sup>4</sup> Terraced agriculture, mostly rain-fed and snow-fed, forms the primary occupation. The availability of moisture in winter through snowfall and the presence of a multitude of springs and streams on the hillside mean that farmers are able to produce two crops even though the quantum of rainfall is not high. Broadly speaking, paddy, *mandua* (*Eleusine coracana*) and *jhingora* (a millet: *Oplismenus frumentaceus*) are the main kharif crops whereas wheat, *jau* (barley) and mustard are the main winter/rabi crops; small amounts of *choulayee* (amaranth), vegetables and fibre crops are also cultivated during the kharif (monsoon) season.<sup>5</sup> Animal husbandry, involving cattle, buffaloes, goats and some sheep is an important component of the livelihood system, providing draught power and dung for agriculture and milk and wool for self-consumption and for sale.

Forests and other uncultivated lands play a key role in the livelihood system, as they provide firewood (which is the main fuel in the region), grazing and cut fodder for livestock, timber for buildings and agricultural implements and a variety of medicinal plants and other non-timber forest produce for local consumption and sale. Pine needles or other leafy matter used as bedding in the cattle shed is an integral part of the manure that is applied to the fields. Generally, cattle and goats are grazed during the warmer months and stall fed during the winter months, while buffaloes are stall fed year round. The main sources of fodder during the winter are the lopped leaves of oak trees as well as dry grass, supplemented by agricultural crop residues. Till a few decades ago, local migration to the upper reaches of the Doodha Toli Mountain and other forested areas for grazing livestock was quite common: individuals from each household went off and stayed at specific locations, called *kharaks*, where there were stone huts traditionally occupied by specific clans.<sup>6</sup> This practice continues today in some of the villages.

Ethnically, Brahmins and Rajputs constitute the overwhelming majority of the population in the Doodha Toli region (and most of Paudi Garhwal as well). Scheduled Castes comprise about 15 per cent of the population, consisting of *luhars* (blacksmith), barbers, drummers and other castes (although occupational mobility is quite high). Unlike in the plains, there are no 'middle' castes, that is, those located

in between the upper-caste Brahmins and Rajputs and the lower castes or SCs. And the population of pastoral nomads and other communities coming under the category of STs in Paudi Garhwal is virtually zero.<sup>7</sup> Moreover, the villages being small, they may have almost no lower-caste households and several villages may be entirely single-caste villages.

Demographically, the female to male sex ratio is tilted significantly towards females (54:46 in Thali Sain tehsil as a whole as per the 2001 Census), an indication of the high outmigration of males.<sup>8</sup> Indeed, male outmigration to the plains has been a key feature of most of Uttarakhand for the past several decades, the phenomenon intensifying after the rapid growth of population in the post-Independence period leading to declining per capita availability of agricultural land. Consequently, women bear a higher burden of work in the villages, as they have to now manage virtually all agricultural, livestock-related as well as domestic activities.<sup>9</sup> The status of women in Pahadi society is somewhat paradoxical. On the one hand, in comparison to the situation in the plains, women have historically enjoyed greater freedom—there is no seclusion (*pardah*), no dowry, divorce is by mutual consent, widow and divorcee remarriage is allowed and overall there is freer interaction between men and women (Berreman, 1963: 261). Moreover, the lower number of men in villages with high male out-migration might suggest that women would have a greater voice in village decision-making. But this does not appear to be generally the case (Manjari Mehta, 1996). While the burden of work has increased enormously, limited voice in decision-making in the household and outside, and poor access to reproductive healthcare still seems to be the norm.

Another feature of the culture of the Pahadis (in common with the cultures of many other mountainous regions) that has been noted by many scholars and is also visible to the common observer is the presence of a strong sense of community in these villages. Part of the reason for this is the heavy dependence on the commons and the need for collective action in many contexts. Women need to go in groups when they go to the forest, because of the dangers from wild animals. Households need to exchange labour at the time of sowing and harvesting. Public irrigation channels or *kuhls* are in need of constant

repair because of the fragile nature of the soils and the hill slopes. The kharak system of local transhumance with livestock requires movement in groups. The sense of community is strengthened by the fact that there is relatively less socio-economic differentiation. Caste does create social divisions and lower castes are clearly under the control of upper castes and consequently economically disadvantaged. But there is greater inter-caste interaction and many more similarities of custom across castes than in the plains. On the whole, the Pahadis pride themselves on having a strong sense of village community that overrides or limits the divisions along kin and caste lines.<sup>10</sup>

Historically, life in this region, though very hard, was largely self-sufficient in terms of food. Till two generations ago, villagers wove blankets and clothing from their sheep's wool. External imports were mainly salt and jaggery, which were obtained by bartering amaranth and potatoes. Consequently, the Pahadis were less vulnerable to famines, floods, or market fluctuations that plague rural communities in the plains (Berreman, 1977, 1978). One reason was the reliability of rains and snow and hence availability of soil moisture for two crops. The second was the relatively low level of economic differentiation: very low incidence of landlessness and the continuation of some traditional systems of supporting the lower castes through a share in the crop harvest. Social relations were in a pre-capitalist stage: hiring in or out of wage labour was almost non-existent and sharecropping also quite limited.<sup>11</sup> The third reason has been the availability of fairly assured supplies of drinking water and of fuelwood and grazing from the uncultivated lands (especially in less densely populated regions and inaccessible regions like Doodha Toli).

Given the nature of the physical terrain, the forces of modernisation and 'development' have been generally slower in penetrating Uttarakhand than the plains to its south. This is, of course, now changing. A major impetus came in the 1960s with the building of all-weather roads for military purposes. This coincided with rapid population growth. Educational facilities have spread dramatically, resulting in high literacy rates. However, the Doodha Toli region remains one of the more inaccessible regions (in spite of it not being in the greater Himalayas), showing up as a blank area even in recent tourist road maps. Many of the roads have been recently built and are in a fairly

precarious condition. Electricity is yet to reach many of the villages in the region. But interestingly, television is penetrating rapidly, with people using electricity from batteries for operating them if necessary. Wireless telephones have also reached the ridge-top shops at several points.

One consequence of these recent developmental processes in the Doodha Toli area has been reduced self-sufficiency and increased integration into the larger economy. Modern education has further stimulated outmigration. Thus, there is a much greater dependence on food imports into this region, with little corresponding expansion of commercial crops locally.<sup>12</sup>

## History of NRM in the Region

It is generally believed that, till the advent of British colonial rule in the early 1800s, local communities exercised direct control over cultivated and uncultivated lands with little interference from the rulers (Sarin et al., 2003a: 98). Between 1823 and 1971, the British introduced a series of changes in the control over land and over forest resources that had dramatic consequences for the management of these natural resources. They introduced the permanent land settlement and then the reservation and heavy exploitation of forest lands by the state for timber, softwood and resin. This led to a series of intense and even violent protests (Guha, 1985). Eventually, common lands got split into three categories: Class II reserves (commercially valuable forest lands) that were directly controlled by the forest department, Class I reserves (commercially less valuable forest lands) that were open to all residents of Kumaon and civil *soyam* lands controlled by the revenue administration.

In 1931, as a direct consequence of the protests of the preceding decades, the British passed a law (Kumaon Panchayat Forest Rules) enabling local communities in Kumaon to apply for and create *van panchayats* (VPs; literally, forest councils) to autonomously manage specific patches of lands from the Class II reserves and civil *soyam* lands. These VPs regulated grazing and harvesting of fuelwood, fodder and small timber, had the authority to grant limited amount of timber

for domestic use and to fine those who violated its rules. The VPs were slowly set up across Kumaon division, which included Paudi district. By the time of Independence, about 400-odd VPs had been set up.<sup>13</sup> Although not without lacunae, the institution of VPs is considered to be one of the rare examples of state-supported yet substantially autonomous community-level forest management institutions in South Asia till recent times.

The VP arrangement ameliorated some of the adverse effects of earlier British forest policy in pockets, but it did not modify the overall approach of 'modern' forest policy—a policy that continued after Independence. This approach was not only geared towards the generation of revenues for the state (through commercial extraction), as against the meeting of local needs, but also the manner of its pursuit deprived local communities from a significant share in the employment or profits generated from such commercial use. The emergence of the Chipko movement in the 1970s was correspondingly driven by a multiplicity of concerns—over environmental problems such as floods being triggered by unbridled forest exploitation and devastation due to mining, over inadequate access to and availability of forest products such as fuelwood and fodder for subsistence use and over the exclusion of local communities from sharing in the benefits of the commercial use of forests (Guha, 1989; Krishna, 1996; Mawdsley, 1998). These were also linked to a broader concern about the lack of voice for the Pahadis in the administration and development of the hill region, which was seen as having a distinct ecology and cultural identity from the plains of Uttar Pradesh. This broader concern translated into a movement for a separate state and several of the younger supporters of and activists in Chipko went on to play an important role in the agitation for Uttarakhand. Other concerns of importance to some constituents of Chipko and of the Uttarakhand movement included concern over proliferation of alcoholism and untouchability.

The Chipko movement had significant, though somewhat paradoxical, impacts on forest and environmental policies. The forest contractor system was abolished and a Uttar Pradesh State Forest Development Corporation was created to take on all extraction activities. A complete (but temporary) ban on all green tree felling was issued

in 1979 and a 15-year ban on all commercial tree-felling above 1,000 m was issued in 1981. Using the environmental awareness created nationwide by (among other things) the wide publicity given to Chipko, the Government of India was able to get the Forest Conservation Act 1980 passed, which removed state governments' autonomy in converting forest lands to non-forest uses, whether for roads, school buildings or reservoirs. These changes, however, were lopsided in that they focused on the 'ecological' demands of Chipko without addressing the questions of forest-dependent livelihoods and incomes, let alone decentralised decision-making in development as a whole. Indeed, the Forest Development Corporation became an umbrella under which the earlier forest contractors simply resurfaced as sub-contractors of the Corporation and the same old exploitative practices continued. The initial ban on all green felling, imposed in response to protest fasts undertaken by a Chipko leader, Sunderlal Bahuguna, prevented even the exercise of traditional rights of local communities to timber for house construction or repair—even in well-organised VPs. Another Chipko leader, Chandi Prasad Bhatt, then intervened and got the ban modified to ensure that some local needs could still be met (Krishna, 1996: 160). But these timber rights are based on settlements made during 1910–17 and are quite inadequate to meet today's needs (Sarin et al., 2003a: 100). Local communities began to resent this adverse fallout of Chipko and there was even a *Ped Kato Andolan* (agitation to cut trees) by the Uttarakhand Kranti Dal in 1989 because the Forest Conservation Act was apparently holding up several developmental projects. In parallel, major changes were made to the Kumaon Forest Panchayat Rules. They included a reduction in the forest area from which the VP could be carved out, a reduction in the autonomy of the VP vis-à-vis the state bureaucracy, an increase in the state share in VP incomes and a reduction of the democracy within the VPs by increasing the powers of the VP sarpanch. In certain parts of the hilly region, the establishment of national parks and wildlife sanctuaries further restricted local access to forests and pastures.

Since the mid-1990s, a period which has seen the formation of the state of Uttarakhand, the environmental and development policies in the region have continued and expanded the trend of co-opting the environmental and decentralisation rhetoric in various ways. First,

the mainstreaming of 'decentralised' forest management has led to the adoption by the state of Uttar Pradesh of joint forest management. However, in the hill region, it took the perverse form of village forest joint management, an attempt to bring the VPs (hitherto regulated by the revenue department, but autonomous in their day-to-day management) under the control of the forest department. Funds provided by the donor-supported Uttar Pradesh State Forestry Project were used to get VPs to agree to these changes. Simultaneously, the revenue department went on a drive to create more VPs using only the civil soyam lands within the village boundaries, to 'rationalise' existing ones by splitting big (multi-village) VPs into single-village VPs and to provide funds to them ostensibly to improve their management. Second, watershed development, drought-prone area programmes and soil and water conservation activities have been taken up vigorously through the gram panchayats,<sup>14</sup> all ostensibly with 'community participation', but all with equally slipshod conceptualisation and implementation. The formation of Uttarakhand and its status as a 'backward' state have meant a disproportionately large inflow of donor funds into the state for all these activities. Over the past few years, water scarcity in small towns of Uttarakhand has drawn much attention and the Uttarakhand state government has talked of devoting 40 per cent of developmental funds to work on water resources. Third, the state is also pursuing vigorously a 'developmental' agenda that includes attempts to spread modern education and health care, rapid expansion of the road network, commercialisation of agriculture and intensive efforts to promote 'eco-tourism' as the major revenue earner for the region. Thus, the context in which the intervention being studied began in the 1980s has changed quite significantly over the past 25 years.<sup>15</sup>

## Overview of the Work of DTLVS

The founder of DTLVS is Sachchidanand Bharati. In the mid-1970s, Bharati was a student in Gopeshwar College in Chamoli district. This is close to where the Dasholi Gram Swarajya Mandal started its

agitation that eventually snowballed into the Chipko movement. Bharati was drawn into the movement and worked closely for several years with Chandi Prasad Bhatt, one of the key figures in the Chipko movement. Bharati was also involved in the Uttarakhand Yuva Sangharsh Vahini, a student movement for a separate state. Bharati travelled widely across most of Uttarakhand, spreading the message of Chipko and initiating environmental activities such as tree planting.

Bharati then got a job as a teacher in the government 'inter-college' (standards 11 and 12 ) that had been started in Uphraikhal, a hamlet at the ridgetop of his natal village, Gadhkharak Malla, located in the Doodha Toli region on the border of erstwhile Lansdowne and Paudi *tehsils* (the lowest revenue unit). Bharati accepted the job and saw it as an opportunity to return to his native region and channel the inspiration provided by Chipko into constructive work for the environmental rejuvenation of the region. The initial trigger for community mobilisation was the opposition generated by the forest department's plans to fell several hundred precious silver fir and deodar trees on the slopes of the Doodha Toli Mountain. A successful agitation against this move led to the founding of DTLVS in 1980 as a registered society dedicated to the people-oriented development of the Doodha Toli region, with members drawn from surrounding villages. Since then, Bharati has been the leader of DTLVS, directing a network of volunteers based in the villages where the organisation carries out its work.

The philosophy of DTLVS is linked to that of the Chipko movement, particularly the approach of Chandi Prasad Bhatt, and has been one of acting as a catalyst to bring about a transition to sustainable management of the natural resources, namely, forests, water and land, by the local communities themselves. It is conscious of the need for increasing women's voice and for the uplift of the SCs, while retaining the community spirit that it feels is the essence of the hill region. Although it has agitated from time to time on specific issues such as timber smuggling or liquor, the main focus of its work has been on what it calls *nirmaanaatmak* (constructive) work of regenerating natural resources and improving living conditions and livelihoods in the villages through community mobilisation and minimal technical and financial support.

The DTLVS has worked with and experimented with various kinds of technical interventions. These include:

- (a) Facilitating access to state-subsidised solar photovoltaic (PV) cells for lighting.
- (b) Afforestation and forest regeneration.
- (c) Setting up tree nurseries.
- (d) Planting of fruit orchards for generating income.
- (e) Enhancing water conservation and recharge through different measures.
- (f) Constructing/repairing traditional structures (*naulas*) to protect drinking water springs.
- (g) Building walls to protect agriculture from wild animals.
- (h) Installing improved/smokeless *chulhas* (woodstoves).
- (i) Improving sanitation through the construction of toilets.<sup>16</sup>

The DTLVS has tried to implement these activities by mobilising the community in various ways. First, in the initial stages, Bharati and a few colleagues undertook extensive *pad yatras* (walking tours) of the villages to establish contact with the villagers and familiarise themselves with the issues. Second, DTLVS has been conducting regular environmental awareness camps in different villages in the region (at least two camps a year), which are attended by participants from other neighbouring villages as well as from villages outside the region. These camps involve some tree planting or water conservation activities, some exposure to outsiders to the work done in the host village and some exposure to the villagers to the ideas and debates brought in by the outsiders. Third, right from the mid-1980s, it has organised *mahila mangal dals* (MMDs: women's self-help/welfare groups) in all the hamlets or villages with which it has had some contact. Apparently 133 such groups have been organised so far. The women members of these MMDs are supposed to meet every month and contribute a small amount towards a fund. This fund is meant for providing support to needy members in times of difficulty or need and also for use in various community development activities. The MMDs are thus not micro-credit groups, but more like welfare groups. Fourth, DTLVS has established a network of volunteers (one or two

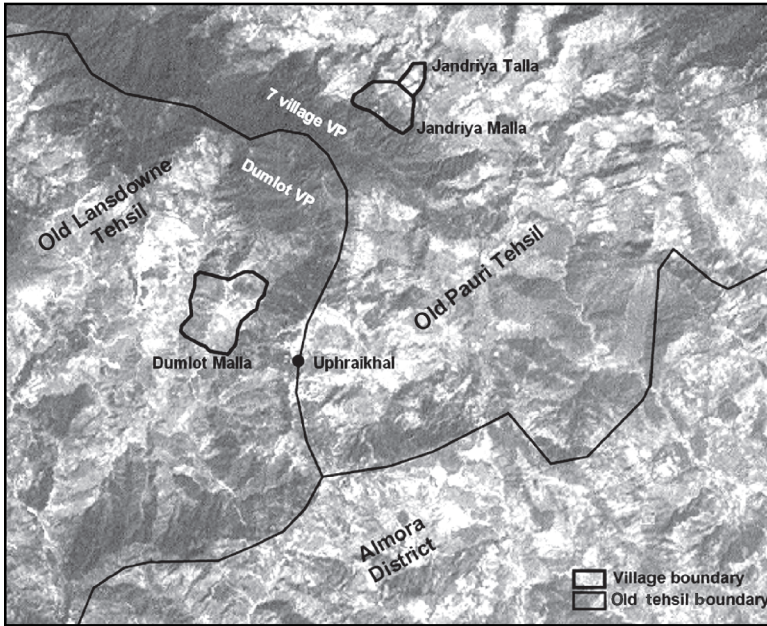
in each village) who liaison between Bharati and the villagers, including the MMDs.

The DTLVS strongly believes in encouraging voluntarism and has consciously chosen to stay at a low level of finances. It has no paid staff at all (including Bharati himself) and it expects villagers to contribute towards the activity through some *shramdaan* (free labour), although it does supplement this with some wages for the rest of the work. It also believes strongly in not getting ‘NGO-ised’, that is, becoming a ‘professional’ organisation with paid staff and infrastructure, which it believes will inevitably lead to more attention being paid to the survival of the organisation than on addressing the most important local issues. Bharati has, therefore, rejected several offers of large funding from various sources in order to avoid getting entangled in ‘project implementation’. The DTLVS has survived financially through small grants and donations. The initial work of setting up nurseries was done with funds from the National Wasteland Development Board and the sale of excess seedlings generated additional funds for a few years (Pahadi, 2004). For the past decade or so, the Uttarakhand Seva Nidhi, which channels funds from the central ministry of human resource development under various programmes including environmental education, had been giving an annual grant of Rs 50,000 to DTLVS. Some additional funds have come from agencies for whom DTLVS has organised special awareness or training camps.

## Interventions and Impacts: Two Village Case Studies

The work of the DTLVS covers 100-odd villages spanning both sides of the ridge that Uphraikhal is located on, although intensive interventions are limited to about 20–30 villages. The ridge is not only the old administrative boundary between erstwhile Paudi tehsil and Lansdowne tehsil (see Figure 6.2), but also represents a significant socio-cultural divide. The villages on the east by north east side, locally known as *Chauthan patti*,<sup>17</sup> are mostly Rajput-dominated, historically

FIGURE 6.2  
Location and Approximate Boundaries of Sample Villages and  
Their Van Panchayats



more inaccessible and perhaps thereby with lower levels of education and correspondingly lower rates of outmigration. The villages on the west by south west side, historically known as *Dhondiyalso patti*,<sup>18</sup> have a much higher fraction of Brahmins, have been better connected by roads, have higher levels of education and (probably therefore) higher rates of outmigration. The average annual population growth rate during 1971–2001 for a sample of five neighbouring villages was more than 1 per cent in the Chauthan patti whereas it was zero or slightly negative for the Dhondiyalso patti.

Having observed this variation in social and demographic conditions during our initial field visits to different villages, we decided to study the nature and impact of the DTLVS interventions in one village on each side of the Uphraikhal Ridge, rather than a single village as has been the approach in most of the other case studies.<sup>19</sup> In selecting the village in each cluster, our main criterion was that the village should

have several kinds of interventions by DTLVS and that it should perceive these interventions as having been reasonably ‘successful’. We eventually selected Dumlot Malla village in the Dhondiyalso patti and two neighbouring (almost ‘sister’) villages—Jandriya Malla and Jandriya Talla—in the Chauthan patti. The locations of these villages are indicated in Figure 6.2 and their salient features are given in Table 6.1. Since the households in the two Jandriyas share strong kinship bonds and a history of joint action in many spheres, we will refer to the two villages jointly as Jandriya except when there are differences between them.

TABLE 6.1  
Main Features of the Study Villages in the Doodha Toli Area

<i>Vilalge</i>	<i>Cluster</i>	<i>2001 Households</i>	<i>Caste Composition</i>	<i>Altitude and Aspect</i>	<i>Road Access and Electricity</i>	<i>Technical Interventions Carried Out by DTLVS</i>
Dumlot Malla	Dhondiyalso patti	53	Brahmins-14, Rajput-29, SC-10	~1900 m, east facing	Good road link to Baijro, connected to power grid	A, C, D, E, F, H
Jandriya Malla	Chauthan patti	23	All Rajput	~1900 m, north facing	Road link at Talla is recent, power grid connection being set up	C, D, E
Jandriya Talla		9			B, D, E	

Notes: A = solar PVs, B = afforestation, C = tree nurseries, D = orchards, E = water recharge structures, F = naulas, G = walls for crop protection, H = improved chulhas, I = toilets (see previous section for details).

After several days of reconnaissance, we spent three to four days in each of the two villages interviewing individuals, holding group discussions with the MMDs, visiting the sites where DTLVS interventions had been carried out and collecting as much secondary data as possible. The initial interviews were conducted along with the DTLVS volunteer in the village, whereas subsequent interviews were conducted without any such mediation. While this imposed some constraints (because we were not able to fully understand the local dialect and Hindi was

not spoken by many of the villagers) it provided us with an opportunity to better understand the villagers' perceptions of DTLVS' work. Of course, it is possible that, with activities spread over 20 years and with public memory tending to be short, villagers today tend to downplay the significance of many interventions. We have tried to keep these methodological limitations in mind while seeking to understand the impacts and processes.

## The Village Contexts

As indicated in Table 6.1, Dumlot is a bigger village than the two Jandriyas and also a mixed-caste village. Jandriya Talla and Malla are entirely Rajput villages, although there are a few SC families located in a neighbouring village, which have traditional ties with the Jandriya villagers and who are given some share in the harvested crop by the latter. Dumlot village has an SC population of 15 per cent, including the blacksmith (luhar) and the drummer (*das*) castes. All the SC households in Dumlot seem to own some agricultural lands, although their landholding is significantly lower than that of the upper castes (in the 0.15–0.30 ha range, as against the upper-caste average of 0.50–1.00 ha). Our observation was that the socio-economic distance between the SCs and upper castes in these villages varies depending upon the context. The economic distance may be reducing as some members of the SC community have got government jobs.

As can be seen from Table 6.2, the rate of population growth has been higher in the two Jandriyas than in Dumlot. The female to male ratio indicates that there is significant outmigration in both villages. However, the nature of migration is somewhat different. Several households in Dumlot have left entirely for the plains. Moreover, the jobs that the Dumlot migrants have obtained are generally higher paying or more white-collar ones than those obtained by migrants from Jandriya, who have either entered the army or are engaged in casual labour in places such as restaurants. This seems to be related to the level of education in the villages, which in turn might be related to the caste composition.<sup>20</sup>

The agricultural systems in the two villages are on the lines described in the introduction. The main kharif crops are paddy, jhingora and

TABLE 6.2  
Demographic Details of the Study Villages in the Doodha Toli Area

<i>Village</i>	<i>Population in 1981</i>	<i>Population in 2001</i>	<i>Annual Compounded Growth Rate (%)</i>	<i>Female to Male Ratio</i>	<i>Literacy in (2001) (%)</i>
Dumlot Malla	212	287	2.2	156:131	57
Jandriya Malla	96	157	2.8	81:66	48
Jandriya Talla	29	50	1.5	24:26	32

Source: Census 2001.

mandua, whereas the main rabi crops are wheat and mustard. Water or soil moisture availability is higher in the Jandriya Malla fields, enabling more paddy cultivation, although all villages have some small areas under 'proper' irrigation using kuhls (irrigation channels) that bring water to the fields from nearby streams. There is a significant area of fallow land in Dumlot, but less so in Jandriya Malla and Jandriya Talla, reflecting the relative endowment of land versus labour in the villages (see Table 6.3).

TABLE 6.3  
Land Use and Cropping Patterns in the Study Villages in the Doodha Toli Area

<i>Village</i>	<i>Total Geographical Area (ha)</i>	<i>Cultivated Area (ha)</i>		<i>Uncultivated Area (ha) within the Village Boundary (Civil Soyam)</i>	
		<i>Irrigated</i>	<i>Unirrigated</i>	<i>Forest</i>	<i>Barren</i>
Dumlot Malla	134	0.7	67.2	30.5 (including 5 ha of pine plantation)	36
Jandriya Malla	~60 (est.)	~3.3	43.0	8.5 (oak forest)	~8
Jandriya Talla	~22 (est.)	~1	16.4	2 (afforested oak)	~3

Sources: Village accountant, Census 1981 and villagers.

Note: In addition to the forest area within the village boundary, each village is part of a VP that gives access to forests outside the village boundary. See text and map for details.

Animal husbandry is a significant subsidiary occupation. Exact figures on the numbers of livestock in the villages could not be

obtained, but it appears that almost every household has at least two bullocks (for ploughing), a few cows and one to two buffaloes. The number of sheep and goats varies significantly across households—most of the households in Jandriya have five to ten goats, but some keep as many as 30–40. The tendency to go to the kharaks has declined for two reasons. First, some of the kharaks have been settled permanently. Second, with male outmigration, there is not enough labour in the household to send cattle to the kharak for several months at a stretch. Villagers in Dumlot have virtually abandoned the kharak system, whereas it continues to some extent in Jandriya.

It is important to note that all three villages are fairly well endowed in terms of forest resources. They are all part of some VP. These VPs were formed several decades ago out of reserve forests that are technically outside the village boundaries (see Figure 6.2) and hence not included in the total geographical area of the village in Table 6.3. Dumlot is part of a 'Dumlot-Dandkhil' VP that was formed in 1959<sup>21</sup> and covers 800 acres (320 ha) of Class I reserves located above the two villages (and extending all the way to Uphraikhal<sup>22</sup>). The VP earlier used to mobilise household labour for forest protection, but at least for the past 20 years it has been paying two men to act as watchmen. The payment used to be in kind, with each household being required to contribute a certain amount of grain, but is now in cash. Although the watchmen are unable to adequately protect some of the more remote portions of this 800-acre patch, nevertheless most of the VP forest has fairly dense oak or oak–pine vegetation and provides ample supplies of fodder and firewood to the villagers. The sarpanch of this VP is typically from Dumlot and five of the remaining eight panchs are also from Dumlot. In addition, Dumlot has a 5 ha pine plantation created several decades ago in its civil soyam lands, which is managed by the gram panchayat and provides significant quantities of pine needles for bedding material for the cattle sheds, pine bark pieces for lighting fires and some building material (the trees are yet to reach maturity in terms of timber).

Similarly, Jandriya Malla and Jandriya Talla are part of a seven-village VP, whose forest area lies in Class I reserves outside (above) the village boundary. The exact extent of this VP could not be ascertained, but it seems as large as the Dumlot VP, although it probably

has a larger population of users in its general body. The forests in this VP are also quite dense and consist of a mixture of oak, pine and rhododendron vegetation. In addition, Jandriya Malla has (in the civil land bordering the reserve forest) significant area (~8.5 ha) under oak forest, which it has begun to protect and manage over the past four decades. This has been recently converted into another VP (a mahila VP). Although there are no pine plantations in the Jandriya villages, there are pine plantations in the non-VP reserve forest close by and the villagers say that they do manage to get some timber from these forests upon payment to the forest department.

## Activities, Processes and Impacts

The DTLVS has been working in Dumlot and Jandriya since the early 1980s. It must be noted at the outset, however, that their style of working is different from that of typical, programme- or project-based NGOs. They have not focused specifically on one village, but across a large number of villages. They have not developed any 'integrated' village-level resource management plans, but rather have experimented with various interventions at various points in time over the past 20 years. Therefore, rather than discuss each village separately, we will describe the nature and impact of individual interventions—technological and social.

### Solar PV-based Street and Home Lighting

One of the early interventions by DTLVS was in facilitating the provision of solar PV cell-based lighting kits for the villages. In the 1980s, this region had no electricity supply. Households depended entirely on kerosene-based lamps for lighting. A scheme promoted in 1984 by the Non-Conventional Energy Development Agency of Uttar Pradesh involved providing solar PV-based street lighting for villages for free. The DTLVS liaised with the government to ensure that some of the villages got this facility. In fact, villages as remote as Daera got street lighting in 1986. Subsequently, starting in 1988, the government

offered similar kits (which lit two fluorescent bulbs each) to individual households at a subsidised price. A few kits were made available per village at a time. Many households in Dumlot and a few in Jandriya got these kits by paying Rs 500 between 1989 and 1993, which was the contribution required by the government since the kits were for private use.<sup>23</sup> Over the years, more households have adopted these kits. The contribution required for the kits has also risen over the years (it now stands at Rs 2,500—not an amount that all households can afford). The technology appears to have been fairly robust, with batteries generally lasting more than six years. Of course, the household has to pay for the replacement of the battery. Most of the original PV sets are in use and more are being installed every year. With electrification from the grid progressing at a fairly slow pace in this region and the connections being quite prone to breakdown, stand-alone PV sets are still the dominant technology for domestic lighting in this area.

The DTLVS' role here was to liaise with the government and (in the early days) to convince the villagers of the technical viability of these kits.<sup>24</sup> It also trained some of its volunteers in the maintenance and repair of these kits, although over the years, the need for maintenance appears to have declined. In today's context, this intervention may look very insignificant, but in the 1980s, it was a significant contribution to improving the quality of life in this region. The scheme was poetically described as having created 'solar fireflies' (Anonymous, 1998: 101). It should be noted that collective action was required for this activity only in its early format, when it was meant for village street lighting. Subsequently, there was no need for collective action and in that sense it is not a community-based strategy. But it did generate enormous goodwill amongst the villagers towards the organisation, which facilitated future activities. One can say that DTLVS, at least in its early days, was more or less a 'service NGO' providing an important link and conduit between the state and its programmes and the remote villages in this region where the presence of the state was almost negligible.

The limitations of the technology are that it is expensive and for a subsistence-level household in the 1980s, even Rs 500 was a major investment. Consequently, the benefits accrued in a lopsided manner, namely, to those who could afford this technology. The penetration

was slower in Jandriya—only three households came forward to take these kits in 1989—probably indicating the lower level of disposable income in those villages. Much later, another eight households received these kits through the block development officer. Some of the SC households in Dumlot do not have these lamps yet. The PV-based street lamps, on the other hand, although fully subsidised and providing wider benefits, did not sustain as the villagers were not willing to collectively bear the cost of replacing the batteries for the street lamps once the original battery wore out. One also needs to keep in mind the fact that the ‘public’ benefit of a street lamp is bound to be limited in a village where the houses are not tightly clustered together.

### Afforestation

Although both Dumlot and Jandriya have access to large VP areas, in both cases the distances to the areas from which winter fodder (oak leaves) and firewood can be harvested is quite significant. The walk is several kilometres and involves a climb of at least 200 m. In the case of Jandriya Talla (which is located below Jandriya Malla), it is a longer climb. Moreover, Jandriya Malla has significant civil soyam forest area within its own boundary (just above the settlement), whereas Jandriya Talla has no such area. After the setting up of MMDs in Jandriya, the women of Jandriya Talla came up with the suggestion that an oak forest should be created within their village boundary to supplement what they get from the VP forest. They identified a small patch of 2 ha of open civil land within their village. The DTLVS provided monetary support in the form of paying wages for the labour, and the women of Jandriya Talla (just nine households) did all the work of collecting oak seeds and raising oak seedlings, building a protective stone wall around the patch and protecting and replanting as required. The work was carried out around 1989 and today the patch is a dense banj oak stand. The harvesting of leaves and twigs from this patch is not yet as intense as that from a full grown forest, but the thinnings and trimmings make a significant contribution to the household requirements. Equally important, the women of Jandriya Talla clearly have a strong sense of ownership and pride in the forest that they have raised in

what was a barren piece of land. They jointly protect the patch and jointly decide when to harvest and how much.<sup>25</sup> Their effort prompted the villagers of neighbouring Teolia village to emulate this idea: they also identified a patch of degraded civil forest (in fact, larger than the one in Jandriya Talla), built a stone wall around it and regenerated it to the point that it is now fairly dense and becoming a significant source of oak leaves and twigs.

These efforts are small and their contribution to alleviating women's burden of collecting fuelwood and fodder cannot be enormous. Nevertheless, they constitute significant community-initiated efforts at meeting a felt need of a weaker section (women).<sup>26</sup> Banj oak vegetation is also seen as having significant spillover benefits in ecological terms. Banj is considered a 'source' of or at least conserver of soil moisture and a species much preferred by various animals and birds. There is clearly careful regulation of harvest in these patches, so the sustainability question arises only in the context of the protection arrangement. The women of Jandriya Talla indicated that the protective wall has broken down in a few places and that they would like to approach DTLVS for financial help in rebuilding the wall. While this might indicate a continued dependence on external help, it is quite likely that the women can carry out the repairs on their own if necessary. More important, perhaps, is the ripple effect as seen in the case of Teolia's emulation of Jandriya Talla's efforts. On the other hand, one does not observe any engagement by DTLVS with the question of how the VP (the much bigger source of forest biomass) itself is managed, either in Dumlot or in Jandriya. This has implications that will be discussed next.

It is also interesting to note that while there has been a willingness to augment fuelwood and fodder sources in this manner, there has not been an acceptance of smokeless fuel-efficient chulhas or woodstoves for several of the same reasons that have dogged the chulha programme elsewhere—smoke (from the traditional chulha) being seen as having the side-benefit of warming the house, the new chulhas requiring fuelwood to be cut into small pieces, requiring too much tending and modifications in the cooking practices to really result in fuelwood savings, they being too slow to meet the requirements of a large household, their chimney causing leaks in the roof and so on.<sup>27</sup>

## Orchards and Nursery

In line with its efforts to promote afforestation, DTLVS started nurseries in several villages. The main purpose was to produce seedlings for their own afforestation programmes, but as the nurseries grew, they also sold seedlings to government agencies, including the forest department, and thereby generated funds for supporting other activities. In the case of Dumlot and Jandriya, the nursery activity was combined with the idea of trying out horticulture on abandoned agricultural plots. So DTLVS entered into an agreement with villagers to 'take over' a certain patch of abandoned/fallow agricultural land, built a protective stone wall around it and planted various tree species, including walnut, apple, pear, deodar, silver fir, etc. To ensure seedling survival during the summer, trenches or pits were dug next to or above the pits in which the seedlings were planted. Simultaneously, a nursery was created in one corner of this enclosed patch and seedlings were grown for sale and use in other afforestation efforts. The local communities, especially the MMDs, were involved in building the stone wall and digging the tree pits and water conservation trenches (*jal talais*) in both Dumlot and Jandriya (both Malla and Talla), for which they were paid wages. Although there was no explicit shramdaan component, the wages paid appeared to be modest. The size of the orchard in Jandriya is about 6.5 ha and about 6 ha in Dumlot. The sites are somewhat different in that the orchard in Dumlot is on a steeply sloping patch, whereas the one in Jandriya Malla is on a gentle slope. In both cases, however, the patches are located rather far away from the settlements, at the edge of the village boundary.

The nursery activity in Jandriya lasted for several years. The villagers benefited directly in the form of wage employment for two to three persons who were employed by DTLVS as gardeners-cum-watchmen. In later years, as the nursery activity tapered off, the number employed came down to one. But this employment went to males, not to members of the MMDs. In Dumlot, DTLVS has employed one watchman, but the women also take turns in watching over the orchard. The villagers, however, benefited indirectly because the protected patch produced large amounts of grass that the women were able to harvest as fodder. In Dumlot, the women are able to harvest one headload

each for a period of seven to nine days during each winter and this saves them a lot of effort as they would otherwise have to go to the VP forest for fodder collection. In the case of Jandriya, as some of the trees grew, the grass production reduced, but it is still substantial—women reported collecting one headload each for about seven to eight days during the year. In addition to the problem of tree canopy closure, this orchard faces a problem of declining protection that is leading to grazing by cows and thereby a decline in fodder productivity.

The idea behind introducing horticulture was to augment incomes, especially from lands that are falling into disuse because of shortage of labour as outmigration increases. Several of the other species, such as apples and pears, did not survive at all, but many walnut trees have survived and grown. The DTLVS had particularly high hopes on walnut, as walnut cultivation had earlier succeeded in Gadkhkharak village. It was felt that this tree could bring about the kind of revolution that apple cultivation had brought about in Himachal Pradesh.<sup>28</sup> Unfortunately, this experiment has not succeeded in these two villages for different reasons. In Jandriya, the few hundred surviving walnut trees are, in fact, yielding some fruit today. But the quantity is small and in the absence of protection there is no control over who harvests them and when. Recently, a dispute between Jandriya Malla and the neighbouring village of Sasou led to Sasou villagers allegedly setting fire to the grass in the orchard, which led to the death of many fruit trees. In Dumlot, the survival has been fairly good (around 75 per cent), but the growth of all species, including walnut, has been very slow, possibly due to the much poorer soil quality on the steeper slope there.<sup>29</sup> After more than eight years of effort by the NGO and contributions by the villagers, grass remains the only sustained benefit received from the orchard-cum-nurseries. Even here, the benefits have not always been fairly distributed. Although women from Jandriya Talla and Teolia contributed to the initial wall-building, digging and planting in the orchard in Jandriya Malla, they do not get a share in the grass that is now harvested.<sup>30</sup>

The reasons behind the very mixed results of the orchard-cum-nursery activity are not difficult to understand. First, there are clearly technical limitations to the idea of horticulture in abandoned fields. The fields that are abandoned are logically those that are furthest away

and have the poorest soils, where the cost–benefit ratio of agriculture becomes quickly unfavourable when labour is scarce. But villagers pointed out that even fruit trees need good soils and some care (manuring, etc.) if they are to be productive.<sup>31</sup> Second, there is confusion about ownership. In both cases, but particularly in Jandriya, there is a feeling that the land (and therefore its commercial produce) now belongs to the DTLVS, because a written agreement was reached between the farmers who owned the fallow fields in that patch and DTLVS allowing the organisation to take over the land for the nursery operations. The fact that the profits from the nursery activity went to DTLVS (no doubt to support other activities) and the hiring of male (not female) wage labourers to take care of protection and cultivation in the nursery phase strengthened this feeling. The benefits from grass harvest are significant, but are seen perhaps as temporary and as a largesse from the DTLVS rather than as a ‘right’ from a common resource regenerated communally. Third, even if the DTLVS were to make it clear that the nursery operations are over and hence the villagers can now take over the orchard, there is a lot of confusion amongst the villagers as to whether the economic returns from the fruit trees (if any) would be distributed in proportion to the land contributed by the original landholders of the fallow fields or equally amongst all villagers. Many villagers seemed to think it would be the former. Clearly, there had been no discussion on this subject prior to the creation of the orchard.

### Water Conservation and Drinking Water Naulas

In the early 1990s, many parts of Uttarakhand began to experience serious shortage of water for domestic use. Although largely a problem of the towns, this problem was also felt to some extent in rural areas during the driest months of the year. As a response, the DTLVS began to experiment with water conservation strategies. They came up with the idea of *jal talais*, that is, small water-harvesting pits or trenches to reduce and store run-off from the slopes. These talais are generally 2 m long, 1 m wide and 1 m deep (less wide if the slope is steep). Hundreds of such talais are dug in a particular patch, usually in combination with tree planting. The soil excavated is used to line the edge of

the talais with mounds. The idea was to increase recharge, while also ensuring some local moisture that would facilitate the growth of the saplings.<sup>32</sup> In Dumlot, several hundred talais were dug in two locations—in the orchard described earlier and more recently on the west-facing slope where some tree planting work has also begun. In the orchard, there is also a larger size (15 m long, 10 m wide and 5 m deep) percolation tank. In Jandriya Malla, several hundred talais were dug inside the orchard. More recently, some were dug on the slopes adjoining and above the orchard. In each case, the villagers were paid a modest amount for the labour involved.

Clearly, digging pits across the slope leads to some water harvesting and its recharge and will also benefit soil moisture in the plantation. But there are technical as well as social issues about which there is not enough clarity. Technically, it is not clear what the quantum of recharge can be from pits of this size, which might easily overflow in case of a big downpour. It is also not entirely clear whether inadequate recharge can be a serious factor in a region where the geology is sedimentary and therefore the hydraulic conductivity of the soils may be naturally high. Indeed, the cause of most landslips in this region is the saturation of the slope, after which the soil mass slips along some plane where the bonds are weak (such as a soil–stone interface). With the major portion of the catchments being forested, the infiltration rates in the catchments are likely to be fairly high to begin with and the incremental benefits from the talais may be fairly small anyway. Equally important is the question of who benefits from the recharge and how. In Jandriya, the increased recharge would augment the flow of a stream that is hardly used by Jandriya villagers and the fraction of the catchment of this stream that has been treated in this manner is probably less than 20 per cent. Not surprisingly, when villagers are asked pointedly how the talais benefit them, those in Jandriya categorically said that they do not benefit in any way except for the wage income from the digging of the talais. In Dumlot, although the stream is used for irrigation, the fraction of the stream catchment thus treated is very small, perhaps less than 10 per cent. The DTLVS has so far not focused on the question of water use for livelihood enhancement, which might be the more critical issue. Irrigation, as mentioned earlier, is provided through small channels that are built along the contour, diverting water from the

stream into fields on the slopes. Traditional channels were temporary ones, requiring extensive rebuilding every year. The government's irrigation department has attempted to build permanent cement channels in several villages, but we noticed that they were all in disrepair. Addressing this issue of declining or maintaining irrigation systems might be more critical to enhancing local livelihoods by making agriculture more productive.

In recent years, DTLVS has focused more on the question of augmenting or protecting drinking water supplies. It has attempted to renovate or build afresh traditional-style structures called *naulas*, which are essentially small (~2 sq m) dug ponds (with a roof) that store water seeping out of the hillside. In 2005, one such *naula* had been built in Dumlot and a few other *naulas* were built in Bharadidhar village that is downhill from Dumlot.<sup>33</sup> The DTLVS provided Rs 10,000 for the construction of these *naulas* and the work was carried out under the supervision of a volunteer from this village, with the villagers being paid wages for their labour. In Bharadidhar, the construction of one *naula* was linked to the digging of *talais* on the slope above it and the villagers felt that this had led to an increase in the flow of the spring and the revival of a spring in an older *naula* just below the new one that had been abandoned 35 years ago. It should be noted, however, that both of these villages by now have piped water supply systems constructed by the state water agency which draw water from the major stream a few kilometres away. The villagers find this system more convenient than walking to the *naula*. But the piped water scheme is also notoriously unreliable: frequent blockages as well as breaks due to landslips are followed by days or weeks of waiting for the agency's repairman to come and fix the problem. The villagers, therefore, see these rejuvenated *naulas* as a good backup source, where they do not have to be at the mercy of the vagaries of government departments.

Reviving or rehabilitating traditional drinking water sources, however, can also mean reviving or retaining traditional (but not necessarily healthy) social customs around those sources. In the case of Dumlot and of Bharadidhar, this has meant retaining the custom of not allowing SC people to take water from the same *naula* that is used by upper caste Brahmins and Rajputs. In Bharadidhar, the (upper-caste) villagers cleverly 'resolved' the issue by building another *naula* on the

spring that was used by the few SC families in their village. In Dumlot, the question is still hanging fire. When asked whether they would allow the SC families to use the naula, the upper-caste women in the MMD dithered and said that perhaps they cannot stop them (especially since the mason who had actually done the masonry work on the naula was himself from that community!) but that they (the SCs) had separate drinking water sources that they should continue to use. These sources are, however, not springs, but streams (making the water more likely to be polluted), are not all perennial and are often located further than the naula. If they go to the naula, they have to wait for some upper-caste person to come there who can draw water from the naula and fill their pots for them. Thus, the construction of the naula has exposed and possibly widened the caste divisions within the so-called village community.<sup>34</sup> Whether the friction generated in this context spills over into activities where currently there is no discrimination, such as grass or oak harvest, remains to be seen.

### Formation of MMDs

The only village-level institutions formed by DTLVS are the MMDs. In the two sample villages, these were formed around 1989. Although initially the Jandriya MMD included Jandriya Malla, Jandriya Talla and also the neighbouring village of Teolia, they split into three separate MMDs within the first few years. The MMD is supposed to meet every month and each woman member is supposed to contribute a fixed amount to the *kosh* (fund). Initially, this amount was Re 1. It was later increased to Rs 2 and now stands at Rs 5 in both villages. This common fund was used to give interest-free loans to needy members and to spend on community activities. Apart from the financial benefit of this activity, the MMDs were meant to provide a forum for women to meet, discuss their problems and take some collective decisions in terms of planned activities. Over the past 15-odd years, they have collected a fairly large fund—in Jandriya Malla, it is about Rs 15,000. The Dumlot MMD has about Rs 5,000, having spent about Rs 15,000 on renovating the village temple and on a few other community activities. But, as mentioned earlier (see note 34) sometimes these community activities can end up providing benefits in a lopsided manner.

The details of the process of MMD formation in these villages could not properly be elicited, since they were formed so long ago. However, it seems clear that DTLVS was involved (mainly through its village-level volunteers) in various handholding activities. First, they helped the women maintain accounts of the transactions—something that is now being handled to an extent by the women themselves.<sup>35</sup> Second, they tried hard to get these MMDs registered with the government. The idea here was that this would provide them some additional financial support from the government. This did not work out because the government officials who were supposed to register the MMDs were demanding large bribes, which the women were not willing or in a position to pay. It appears, however, that at some point the Jandriya Malla MMD did get registered and co-opted into the government's *Mahila Samakhya* programme and has been receiving some minor benefits from that programme without DTLVS playing any role. This raises two issues that we will be highlighting later in the discussion, namely, the lack of systematic follow-up from DTLVS on certain issues (in this case strengthening of the MMDs) and the expanding scope and reach of government programmes that are co-opting locally-initiated activities and institutions.

In recent years, the functioning of the MMDs is going through some ups and downs. In both Jandriyas, the MMDs reported that they were not meeting regularly and had stopped contributing to the fund. This seems to be partly because the erstwhile president of the Jandriya Malla MMD, Ruma Devi, had emigrated and partly because in both MMDs the members had not come across any new initiative that could generate concrete benefits for the members. In Dumlot, the members indicated that they would meet after the harvesting season was over and make up all the backlog of contributions (because they had not met for a few months). But the women from the SC community in Dumlot have indicated that they have stopped going to the MMD meetings and contributing to the fund as their views are not taken into consideration (and also perhaps due to the controversy over the *naula*; see note 34). What this suggests is that the condition of the MMDs is still precarious in terms of the women's capacity to organise and run them.

More importantly, the role of the MMDs vis-à-vis the DTLVS programmes seems rather limited: they are involved in subsequent operational issues, but not in planning. For instance, the decision regarding when to open the respective orchard patches for cutting of grass is taken by the MMD in Dumlot and Jandriya Malla. On the other hand, the decision to deepen the percolation tank in the orchard in Dumlot or the decision to construct the naula was not taken by the MMD, nor was the MMD the organisation through which the work was implemented. Similarly, the recent jal talai construction or more recent medicinal plant and turmeric planting activities in Jandriya Malla were also not decided upon or implemented through the MMD.

At the same time, the MMDs are being drawn into a different kind of linkage with state agencies that they may or may not have the capacity to negotiate on their own terms. We have mentioned earlier the relatively innocuous linkage with the state Mahila Samakhya programme. A more interesting development is the formation of a mahila VP in Jandriya Malla in 1997 under the aegis and encouragement of the VP department. The general body of this mahila VP is the MMD membership and the then president of the MMD in 1987 was made the first president of the mahila VP. In fact, according to her, the funds of the MMD were merged with those of the mahila VP. This VP was the formalisation of what had till then been an informal arrangement within the village (starting back in the late 1960s) of protecting and managing the (largely oak) civil soyam forest that lies within the revenue boundary of Jandriya Malla. Locally, such informal protection of civil lands is called *ghar panchayats*. The formation of the mahila VP enabled the villagers to get access to government funds: in 2001, they were sanctioned a grant of Rs 120,000. Of this, about Rs 30,000 seems to have been made available to them for setting up a nursery, building a stone wall and building two small tanks for storing water for irrigating the nursery (the rest of the amount seems to have disappeared into various pockets along the way). Eventually, they were given only Rs 15,000 because they found that the labour involved in getting the stones was too much and so stopped the work. Nevertheless, the nursery was prepared and several thousand seedlings of different species (including chir pine) were grown. For two years these were sold to an

agency implementing the government's watershed and drought-prone area protection programmes. A profit of about Rs 15,000 was made in the process (they did not pay wages to the women members who worked to prepare seedlings; only some wages were paid to those involved in watching over the nursery). This profit is now going to be added to the common village fund and used (again!) towards common activities such as festivals.

While this conversion of the MMD into a mahila VP could be interpreted as a sign of the growing strength of the MMD, it is doubtful whether such an interpretation would be appropriate. The MMD members did not seem to know the details about the formation of the VP, nor of the obligations that might emerge as a result of signing up for government recognition. They do recognise that there is enormous corruption in the whole process of obtaining the government grant, but seem to take the position that getting some grant is better than getting nothing. There also has not been any significant discussion about whether the MMD members should get wages in return for the work they put in for the nursery. And the mahila VP is now actually being run by the president's husband, although there probably are some other younger literate women in the village.

## Environmental Awareness Camps

The DTLVS has conducted several environmental awareness camps in both villages, although the last ones conducted in Jandriya were several years ago. Similarly, some villagers from each village have been attending camps held elsewhere. As described earlier, the camps include some physical work, discussions and cultural activities (apart from collective cooking and consumption of food!). Most of the villagers we interviewed felt that, during the early years, the camps served an important purpose of building awareness about issues and increasing contact across villages, with DTLVS and outsiders. But they are now beginning to feel a certain amount of fatigue because the camps are becoming repetitive and they do not seem to be addressing any of the issues that are of immediate concern to the villagers, but rather (in some villagers' view) seem to be geared towards showcasing the achievements of the organisation to outsiders.

## Understanding the Interventions

The interventions by DTLVS in the case study villages span 20 years, a period during which it has tried to address several issues: improving the quality of life through lighting, augmenting forest resources availability, increasing incomes through fruit orchards, improving water recharge, protecting drinking water springs and building SHGs for women. The quality of life for local communities has improved in various ways, including availability of lighting in houses, easier availability of fodder and in some cases firewood and the setting up of forums for women to come together. There also have been some indirect ecological benefits to the wider public in the form of increased recharge of water or a shift from a focus on chir pine planting to the planting and regeneration of oak species. It is also clear that at least some of these gains are ecologically and socially sustainable, as the local users have seen the benefits of solar PVs and fodder/fuel regeneration and are taking necessary steps—such as protection or maintenance of afforested or fodder patches—to ensure that these gains continue to accrue. Even more important perhaps is the attempt to (re)create and maintain a level of awareness and concern about environmental issues, both those that are directly related to local livelihoods (fodder or fuelwood) and those that may have wider implications (water). Finally, it should be kept in mind that these impacts have come at a very low level of public cost, as DTLVS operates in a very low-cost mode.

On the other hand, there have been some clear failures. In particular, the attempt at income generation through orchards has largely failed and there is no serious programme for income generation operating right now.<sup>36</sup> The approach to water conservation seems to generate rather limited benefits to an unclear set of beneficiaries downstream and is thus not generating deep and sustained interest from local communities. Instead of having a sense of ownership, villagers seem to participate in such activities because they get some wages. The rejuvenation of drinking water sources has exacerbated the social distance between the upper and lower castes. The MMDs, while possibly benefiting the women initially, have only marginally increased women's voice in village-level decision-making. They have also been an arena

of converting individual labour contributions towards so-called community activities that often only benefit particular groups or sections of the community.

Perhaps of greater concern are the areas of inattention or non-engagement. First, given the well-known problem of inadequate income-generating activities within the hills, the experimentation with walnut orchards seems both inadequate in scale (a few hectares in each village) and also in depth (without much attention being given to the question of soil quality or inputs, or to questions of marketing). Second, as mentioned earlier, the experimentation with jal talais has neither been rigorously analysed nor been integrated with questions of irrigation. Third, institution building has been limited to the formation of MMDs and there has been little engagement with existing village-level institutions that have a major say in NRM, namely, the VPs, the gram panchayats and the whole host of user groups or committees being set up under various programmes. After 20 years of dedicated work by DTLVS to spread the message of *jal-jangal-jameen bachao* (save water, forest and land resources), villagers are asking whether their environmentalism has come at too high a cost in terms of actual losses (from crop raiding by wildlife) or lost opportunities for enhancing livelihoods. And they seem to be increasingly enmeshed in the state-sponsored processes of democracy (notwithstanding their limits) and institutions of NRM.

To understand these outcomes as seen today and to anticipate the challenges that may arise tomorrow, one has to look at the choice of strategies and the underlying philosophy as well as the influence of the changing local context and the role of the state on the outcomes.

### Strategies Chosen: CBNRM Lite

The key issue in any CBNRM effort, as we have said in Chapter 1, is the manner in which the processes of community mobilisation, action and decision-making are initiated and institutionalised. In DTLVS' work, a key (if not innovative) mobilisation strategy has been the extensive visits by Bharati to all the villages in the initial period and the use of environmental awareness camps to further mobilise the

villagers. The mood of Chipko was very much in the air at that time and DTLVS continued the campaign mode of functioning to great advantage. Subsequently, however, the processes through which the issues have been selected, solutions identified and activities implemented have varied. The issues chosen to be addressed appear to have emerged in different ways, rather than through any systematic process of identification of needs and priorities. Some were concerns highlighted by local communities (such as the need for an oak patch in Jandriya Talla), some were opportunities presented by government development programmes (such as the solar PVs) and some were ideas conceived by Bharati himself (such as the jal talais).

The decision-making process has the involvement of the villagers, but there seems to be neither any standard democratic forum in which these decisions are taken (such as a meeting of the entire adult population) nor is there always a conscious effort to involve the women as much as the men in decision-making. As mentioned earlier, the MMDs could have been such a forum, but have not been so in every issue. Indeed, looking at the current functioning of the MMDs and their current role in the DTLVS activities, it seems that they have ended up becoming not so much an instrument for gender empowerment, but rather (because of women being responsible for the bulk of natural resource related activities in the village) as a necessary and efficient means for mobilising women's labour for various interventions.

Similarly, the implementation of the activities has followed different routes. Some were implemented at the individual level (solar PVs), some were implemented by the women's groups directly involved (forest regeneration). Some had the entire village involved (hosting of environmental awareness camps) whereas some had only some villagers involved as wage labourers (nursery and orchard protection) and in some all villagers seemed to be involved but more as wage labourers than as long-term investors (orchard planting, digging of talais). Diversity in actual implementation is of course bound to occur because not all work can be done as collective voluntary labour at the level of the entire village. But the inconsistent participation in implementation has compounded the inconsistent participation in decision-making process, as highlighted earlier.

In the absence of a clear democratic forum through which issues can be raised and decisions arrived at in the village, the link between the external intervening organisation and the local community acquires great importance. Here, the the DTLVS has preferred to function through volunteers. In some cases, such as Dumlot or Bharadidhar, this is a person who resides in the village; in Jandriya and several other villages in the Chauthan patti, the link seems to be through an ayurvedic doctor who is based in Uphraikhal but travels regularly to those villages (he is also the secretary of the DTLVS society).<sup>37</sup> In all cases, the volunteers are male, and where they are from the village they are generally from the better off section of the village. Perhaps it is necessary to have male volunteers because the work requires travelling regularly to and from Uphraikhal to the village and to various other locations for liaison with government offices—something that women would find difficult to do, especially since the women in these villages are completely tied up in domestic and agricultural activities. But it is not clear why, for instance, some women staff could not be recruited on a full-time basis, given the enormously important role played by women in NRM. In any case, choosing persons from the village has both strengths and limitations. While it ensures greater rapport with the villagers, there is also the risk that the persons may be too embedded in the traditions of the village to be able to make a difference. While many NGOs recruit community workers from the villages they work in, they often adopt specific strategies for overcoming the limitations (for example, conscious selection of personnel from the weaker sections, training and exposure visits and shifting staff to villages other than their own). Only some of these strategies (mainly exposure visits) have been adopted by DTLVS.

Similarly, it has been the experience of many NGOs that delegating financial management to one individual rather than to a democratic institution within the village can reduce transparency, can increase the risk of financial mismanagement and certainly reduces the sense of empowerment for the village-level institution.<sup>38</sup> Thus, not surprisingly, in the case of recent interventions such as the construction of naulas, the villagers indicated that they are not aware of what funds DTLVS actually provided or how they got utilised, they were only aware of what wages they got in the activity. This may not necessarily mean

financial mismanagement by the volunteer, but certainly shows inadequate attention to processes that ensure transparency.

Intertwined with this strategy of choosing volunteers rather than paid professionals, not engaging them full-time or training them intensively and so on, is the choice to remain small and in some sense underfunded. Again, this choice is a double-edged one. On the one hand, it helps avoid the problem of the organisation becoming a bureaucracy and becoming focused on its own survival.<sup>39</sup> On the other hand, it means that the activities that can be taken up are limited and the attention and follow-up that can be provided also limited. As people's notions of development expand and the state's own programmes of development also expand (as will be discussed next), a small voluntary effort runs a greater risk of getting swamped or sidelined.

Finally, democratisation applies not just to the village-level institutions, but also to the intervening organisation itself, especially when it is constituted as a grassroots organisation and not entirely an 'outside' agency. The DTLVS was registered as a non-profit society with a broad-based membership drawn from many villages in the region. In its initial years, it also functioned in this manner. Over the past decade, however, there appears to be a kind of unconscious drifting away from these processes and norms, even the minimum ones for non-profit societies, namely, holding of annual general body meetings of all the members (which in DTLVS' case are drawn from the villages in which it works), election of office-bearers, presentation of audited accounts and debating about the future direction of the organisation. The DTLVS has stopped conducting these activities for the past decade or so. Again, this is not to say that there is no on-going process of consultation with its members or that there is financial mismanagement. One reason for this drift could very well be that the level of funding and activities has somewhat shrunk in the past few years. But the absence of process leaves room for villagers to misunderstand and make allegations.

In other words, while the Chipko-inspired focus on awareness building has been crucial in the initial stages, the 'lite' mode of functioning, which involve thinly spread investments and inputs, and working in a non-project mode with volunteers may be inadequate in the long run because community-based resource management requires sustained building of local-level institutions and resources.

## Organisational Philosophy: A Gandhian Environmentalism

As mentioned earlier, Sachchidanand Bharati entered the field of environmental activism through Chipko and student agitations for a separate Uttarakhand. The leaders of Chipko came from a Gandhian and Sarvodaya background. Their original focus was on decentralising forest control, meeting local needs sustainably, enhancing local livelihoods through small-scale industry and also addressing other social issues such as alcoholism and untouchability. However, as the Chipko movement spread and got 'iconised', the 'ecological' aspects got prominence and the other dimensions were played down (Krishna, 1996; Mawdsley, 1998). In this philosophy, conserving forests, water and soil becomes an end in itself. Bharati was associated with Chandni Prasad Bhatt, who is seen by many as championing the cause of eco-development within Chipko, whereas the ecological dimension was promoted by Sunderlal Bahuguna. However, Bharati's (and DTLVS') philosophy seems to be a combination of the ecological and the eco-development philosophies. Thus, at some level, DTLVS sees resource conservation as an end in itself, whereas at another level the focus is clearly on meeting local needs through sustainable management of local natural resources. There is an emphasis on Gandhian self-reliance, reinforced by the idea that hill communities were till recently quite self-reliant and can, therefore, easily continue to be so. But perhaps because Gandhi always argued for limiting human needs, the emphasis on meeting the 'developmental' aspirations of the poor is not strong. Similarly, although issues of caste-based discrimination and gender discrimination are clearly recognised,<sup>40</sup> there is a strong emphasis on change from within the individual rather than structural change driven from the top. This approach to bringing about the change is non-conflictual and non-violent. And when introducing new technologies, the implicit assumption is that society is not that highly differentiated and that there are enough community institutions to ensure a fair process of integration of the technology. Thus, within the four dimensions of livelihood enhancement, sustainability, equity and democratic decentralisation that were outlined in Chapter 1, DTLVS gives greater priority to the sustainability of natural resource use and on

the subsistence rather than income-generation aspects of livelihoods. And while significant attention has been paid to introducing ideas or technologies that fit the micro-level social and ecological conditions, there has been less attention to questions of devolving the governance of the natural resources. Perhaps it is assumed that these village communities were always largely self-governed, which is not actually the case in many spheres of life now.

### Social Context: Favourable but Changing

The assumptions about self-reliance as a desirable and feasible goal and the existence of self-governing, relatively homogeneous, village communities may be truer in Uttarakhand (and say Nepal and Bhutan) than in most other parts of South Asia, and may have been true in the past. But they were never entirely tenable to begin with and are becoming more untenable today as even the remote Doodha Toli region is witnessing the effects of modernisation and state policy in various ways.

Everywhere we went, the rising expectations about the material standards of living and a hunger for a 'modern' lifestyle were very clear. While these expectations may certainly not be entirely realistic (given the resource constraints), the fact is that these expectations exist and have to be sifted through by any organisation attempting to bring about 'improvements' in livelihoods. Focusing on meeting subsistence uses alone seemed to work in the initial stages of DTLVS' existence, but its adequacy seems to be increasingly questioned by villagers who find that the combination of population growth and rising 'needs' means that they are not able to meet more than 50–75 per cent of these needs from their own productive assets. The Dasholi Gram Vikas Mandal had started out even in the 1960s on the path of small-scale industries to generate extra incomes for villagers. Today, that organisation seems to be experimenting extensively with promoting fruit cultivation and improving their marketing. This adaptation may be essential in the Doodha Toli region as well.

Similarly, neither were traditional forms of governance entirely democratic (as they discriminated against the lower castes, landless persons and women) nor are they really in existence in their earlier

form as the social context (in spite of the remoteness of this region) has changed quite a bit in the last three decades. Male outmigration means women are in the majority in many villages and are doing an even greater portion of the productive and reproductive tasks. Thus, all-male VPs that may have been tolerably functional in the 1930s are likely to be much more problematic today. The formation of gram panchayats under the panchayati raj system introduced in 1992 has created another set of institutions at the local level that have some jurisdiction over natural resources and play a major role in implementing developmental programmes. Hence, an engagement with the issues of local governance now seems imperative.

The case of the VPs provides a good illustration of this point. The institution of VPs is certainly one of the rare examples of state-recognised and relatively autonomous forest management institutions. However, changes are taking place. These include, on the one hand, a slow erosion of the autonomy of these institutions by changes in VP rules and policies, increasing attempts by the forest department to take over these VPs under their VFJM programme and many cases of inadequate bureaucratic cooperation with existing VPs, and, on the other hand, inadequate internal transparency and democracy in the functioning of the VPs (Sarin, 2001a; Sarin et al., 2003a). A classic example of the latter is the fact that women continue to be excluded from the entire election and decision-making process of the old VPs (the concept of mahila VPs was mooted in 1997, but seems to be applicable only to the newly formed ones).

VPs are quite common in the Doodha Toli region and they govern the main source of forest produce that villagers have reliable access to.<sup>41</sup> Consequently, their proper management is crucial to meeting subsistence needs and ensuring forest conservation. Today, the large Dumlot–Dandkhil VP faces significant difficulties in protecting its forests from illegal use by neighbouring villages, including Gadhkharak (which has been applauded for regenerating its own civil forest with inspiration from DTLVS) and Bharno. This VP has also faced the threat of closure from the forest department on the ground that the VP area is actually a Class II reserve. Furthermore, if changes are made in VP rules, villagers could better meet subsistence needs and also generate some income through (say) extraction and sale of resin and medicinal

plants themselves (currently it is done by contractors). Only through continuous engagement with such issues at the local and the policy level will DTLVS be able to make a broader impact.

### Parallel Processes by the State: Synergy or Sidelining?

In 1980, when DTLVS began its work, the presence of the state in the region was relatively weak and issues of sustainable management of natural resources for meeting local needs almost entirely missing from the developmental state's agenda (except perhaps in thinking about modernising hill agriculture). The Chipko movement and the wider national and international environmental movement that it contributed to changed this quite dramatically. Today, state-led 'participatory NRM' programmes have become the norm, whether as JFM in forestry or as Hariyali in watershed development or in drought-prone areas, soil-and-water conservation and minor irrigation programmes, or rural water supply and sanitation. These programmes and projects present a serious challenge to anyone working on CBNRM in the field because they have all adopted the rhetoric of CBNRM while in practice often only tinkering with the rules of the game and, in the case of VPs, actually trying to undermine institutions of CBNRM that were actually reasonably autonomous and well functioning. Moreover, these programmes often seek to involve NGOs in the name of facilitating people's participation, thereby posing a dilemma to the organisations working in the field.

Given that one cannot wish the state away and that in fact the entire politics of the formation of Uttarakhand or even of Chipko was not about rejecting the state but reshaping it to get more space for local concerns, the issue is not how to keep the state out of village-level natural resource management, but one of shaping state policies and programmes so as to better support (rather than undermine) existing village-level institutions such as VPs or newly-created ones such as gram panchayats and to figure out how to push these institutions towards a more socially and ecologically progressive politics.

The challenge is further magnified because these programmes are being funded in a big way by bilateral and multilateral donors. (The flow of funds and programmes is even higher for Uttarakhand

because it is seen as a new and relatively 'backward' state.) Consequently, the villagers now see a plethora of so-called 'participatory' programmes that bring in a much higher quantum of funds than the minuscule support provided by DTLVS for implementing its activities. Moreover, the village elite see these programmes as wonderful opportunities for rent-seeking and convince the general villagers that the simplest and only possible role they can have is as wage labourers who can get high wages for doing little and slipshod work. This scenario seems to be widely prevalent. A *pradhan* (headman) of one of the gram panchayats in the region openly boasted to us about the 'clean and simple' system that he follows in terms of the cuts provided at various points in the flow of funds to various functionaries and how he ensures that all his elected colleagues in the gram panchayat get at least one programme in which to get their cut and so on.

The DTLVS' approach to this issue seems to be largely one of non-engagement. Such non-engagement might be a reflection of the confidence it has in the villagers being able to navigate through this maze and flood of programmes without compromising their legitimate interests and concerns. Certainly, one should not underestimate the villagers' capacity to negotiate with the apparently all-powerful state. It is also true that a small organisation cannot fight battles at all levels, a point that Bharati made time and again to us. But given the limited capacity-building of village-level institutions that has occurred and the enormous (mostly negative) influence that these heavily-funded and poorly-designed target-oriented programmes can have on grassroots processes, this battle may ultimately turn out to be more crucial than the one of getting communities to build more *naulas* or dig more *jal talais* in the Doodha Toli mountains.

## Conclusion

How do these observations relate to the larger questions being explored through this study and the underlying critiques of CBNRM? Clearly, the 'critique of community' is least apparent in this case—the relatively homogeneous communities have had a long tradition of collective

action in general and collective management of natural resources in particular. Though, as we have illustrated in this chapter, there are some forms of exclusion in some of the villages, the community is still able to mobilise for collective action in NRM. Indeed, while outmigration has reduced the commonality of interest in some cases, the political mobilisation of the SCs has resulted in their at least asking some awkward questions that were hitherto unasked. But some voices are less audible than others and certainly the men continue to function with different priorities than women.

Equally, it seems that the critique of being limited by wider discourse and practices of development seems least applicable in the case of DTLVS. The organisation emerged out of a radical social and environmental movement and has consciously strived to maintain its distinct ideology, even at the cost of giving up large grants. It has sought to keep the flame of local and global sustainability concerns alive while striving for improvements in the quality of life and livelihoods for people in this region. The vision has been decidedly different from, if not against, the mainstream. Also, by refusing to get 'NGO-ised', it has evaded the pitfalls of 'projectisation' and consequent 'co-optation' as well.

What this case shows is that even under conditions favourable to environmental concern and collective action, converting such a 'radical' vision into reality can be enormously challenging. First, in spite of the DTLVS' efforts to foster sustainability concerns, promote appropriate technology and set personal examples of a Gandhian lifestyle, the villagers' notions of what constitutes a desirable lifestyle and their notions of development are clearly evolving in a different direction. Their increasing contacts with the plains, combined with messages conveyed by the government and the media, are enticing them towards greater material consumption. Even if much of these expectations are unrealistic or impractical, they have to be contended with, which is easier said than done. A sustained focus on improving livelihoods means experimenting with agricultural or agro-forestry technologies, marketing and so on, which requires greater funds and external inputs that in turn might undermine the voluntary nature of the organisation.

Second, the state in this case has played a more adversarial than facilitating role. This may be related to the fact that the context is one

in which so-called environmental concerns are juxtaposed awkwardly with so-called developmental concerns. Whereas the environmental concerns are used by the forest bureaucracy to retain control of the forests and in fact to gain control over hitherto relatively autonomous community institutions, the developmental vision of the state, whether in the old undivided Uttar Pradesh or in the newly-formed Uttarakhand, continues to be conventional and perhaps increasingly in tune with the larger mainstream developmental discourse. When the state co-opts the notion of decentralised resource management to deploy a regressive brand of politics, the grass roots civil society organisations can only counter this through networking and advocacy at a higher level and also perhaps by engaging with the political institutions at the village level. How organisations such as DTLVS, which are committed to a different vision of development, rise up to this challenge remains to be seen.

## Notes

1. The state of Uttarakhand was formed only in November 2000, so most of the available literature refers to these districts as being part of the larger state of Uttar Pradesh from which Uttaranchal, the hilly portion, was carved out. In January 2007, due to popular demand, Uttaranchal was re-named Uttarakhand. Paudi Garhwal is one of original eight districts of Uttar Pradesh that were said to comprise the hill region. By 2005, Uttaranchal had divided the original eight districts into a total of 13 districts. Similarly, Paudi Garhwal comprised two tehsils (sub-districts) till recently; now it consists of six tehsils. Our study area, which originally straddled the boundary between Lansdowne and Paudi tehsils, is now entirely located within Thali Sain tehsil.
2. We were not able to obtain rainfall estimates specifically for the Doodha Toli region. About 1,500 mm is reported as average for Paudi tehsil (Khan and Tripathy, 1976). A similar figure is reported by Negi and Joshi (2004) for measurements taken in Paudi tehsil. It is not clear whether this includes snowfall.
3. 'Indigenous' communities such as the Bhotiyas and the Bokshas, present in different pockets of Uttarakhand, are entirely absent from Paudi district.
4. The Doodha Toli region borders with Almora district, which is part of what is known as the Kumaon portion of Uttarakhand. Consequently, there is a mixture of Garhwali-speaking and Kumaoni-speaking groups in this region. Administratively also, Paudi Garhwal was part of the British-administered Kumaon Commissionerate during the colonial period.

5. In individual plots, a sophisticated crop rotation system is followed to maintain soil productivity.
6. This is akin to the *chans* of western Garhwal reported by Berreman (1978) and others.
7. For Thali Sain tehsil, the SC fraction is just under 15 per cent and the ST population is zero as per the 2001 Census.
8. The sex ratio for children below six years is 48.5: 51.5, confirming that outmigration is mostly that of working men.
9. The relative scarcity of male labour is one of the reasons for the decline of the *kharak*-based system of local transhumance.
10. Berreman (1963: 262), in his detailed anthropological study of a Garhwali village, dwells at length on this question. He observes that although divisions along caste, and to a lesser extent kinship, lines do exist, that is

‘only part of the story. The nature of caste in this area creates economic and religious interdependence in the village. Every local caste is essential to every other, and ... a strong cohesive bond is formed.... There is certain lore about the village, its locale and people, which is shared almost exclusively among villagers with regard to castes and cliques.... Participation in common enterprises, ownership of common property, and preoccupation with common problems and common antagonisms further bind the community together despite caste, sib, and clique alignments. Community members participate in annual ceremonies, ritual observances, and informal drinking, dancing, and singing parties. Cooperative work on village-owned trails, on the water source, and in certain phases of house building and agriculture also contribute to community identification.... Indicative of a degree of village unity and interdependence is the ownership by the village in common of large cooking vessels and a few large tools available to all community members as needed....’

We also observed this last-mentioned practice of sharing community vessels by all castes.

11. Some villagers claimed that they were willing to give land out for cultivation at no charge, but there were no takers.
12. In contrast, in other regions such as Naini Tal and Almora districts, there has been an expansion of cash crops such as apples and pears and vegetables.
13. This section draws heavily on Sarin (2001b) and Sarin et al. (2003a).
14. Gram panchayats have been introduced across the country following the constitutional amendments made in 1992.
15. This has implications for the effectiveness or relevance of the interventions, as we shall see.
16. It has also attempted some work on micro-hydel generation near the Binsar Temple on the Doodha Toli Mountain, but this unit did not work for long.
17. Now called Bungidhar Nyaya Panchayat.
18. Dhondiyal is a common Brahmin surname amongst Garhwalis. This village cluster is now called Meldhar Nyaya Panchayat.

19. Another reason for selecting two rather than one village was that the depth of interventions in all the villages was less intensive as compared to (say) the activities that had occurred in Hivre Bazar. In other words, the interventions seemed more extensive than intensive and hence taking a somewhat wider sample seemed appropriate.
20. For instance, the Census 2001 data show literacy levels at about 75 per cent in villages that have entirely Brahmin populations, whereas they are around 45–50 per cent in villages that have predominantly Rajput populations.
21. Other neighbouring villages can also use this VP forest provided they pay certain charges to the VP, whereas residents of Dumlot-Dandkhil get access for free.
22. Strictly speaking, most of the shops and even Bharatis' house in Uphraikhal are located on this VP land.
23. Note that the total cost of each kit at that time (when PV technology was also at an early stage) was estimated to be Rs 18,000, including the battery (Anonymous, 1998: 102).
24. The Non-Conventional Energy Development Agency approached DTLVS because they felt that this technology may not be easily accepted by the 'backward' villagers (Anonymous, 1998).
25. Protection is relatively easy because the patch is small and close to the settlement and so no patrolling is required.
26. Although it appears that the men were largely passive spectators in this exercise.
27. On the other hand, pressure cookers have been quite easily adopted, although again the adoption appears to be higher in the better-off and better-connected villages.
28. Walnut has the advantage of being longer lasting than fresh fruit, being somewhat more protected from pest and bird attack due to its shell and commands a good price in the market. On the other hand, the need to open and dry the kernel immediately after harvest imposes limitations, since harvest often coincides with the late monsoon rains.
29. Only *uttis* (alder) trees have naturally regenerated along the drainage line. The villagers argue that *uttis* has water retention capacity and helps regenerate streams, although this might be a case of correlation rather than causation, because it is an early coloniser when an area starts getting protected. This species also has some use in the manufacture of household furniture, but is not a preferred species.
30. When the original work on the orchard was carried out, the women of all three villages (Jandriya Malla, Jandriya Talla and Teolia) had formed a combined MMD. Subsequently, there was some disagreement about how to manage the MMD fund and the women decided to form separate MMDs. As a result, the Jandriya Malla women denied access to the grass from the orchard that is located on Jandriya Malla land. It is not surprising that such a dispute should have broken out, but it is a bit surprising that DTLVS did not make efforts to resolve it fairly.
31. In Gadkharak, where walnut cultivation was more successful, it appears that the trees were planted on fields with good soils close to the homes and maintained and protected by each household individually.
32. It should be noted that DTLVS has always advocated the use of tree species that are believed to be less water consuming, such as banj and *uttis*, as against

- chir pine, which is fast growing and quick to proliferate, but supposed to be much higher in its water consumption and more conducive to forest fires.
33. The information we obtained from a shorter visit to Bharadidhar usefully complements the information about naulas in Dumlot and hence has been included here.
  34. A few other incidents have also contributed to this ill-feeling among the SCs in this village. One incident is the continued refusal of the upper castes to allow the SCs to enter the newly renovated village temple, even though the SCs had contributed labour towards the renovation. They also point out that half the money for buying the brass bell for the temple was contributed by the MMD's fund, to which the SC women have also been contributing regularly. The SCs also feel cheated because another programme (*Gram Devata*, that is, village deity), encouraged by DTLVS, which was meant to clean up the village and repair the village roads, never covered their side of the settlement. They say that they have also not been invited to participate in any of the camps organised by the DTLVS in other villages.
  35. For more than 10 years, the Jandriya Malla MMD was run by Ruma Devi, one of the few educated women in the village. About a year-and-a-half ago, she emigrated to Delhi. Now, the president of the MMD is Shravani Devi, but it is her husband who looks after the finances of the MMD and of the newly-formed mahila VP.
  36. Some experimentation with cultivation of turmeric and medicinal plants has begun recently, but it is at a very small scale. Also, like in previous experiments, there is no planning in terms of share in the harvest of these plants.
  37. But in these villages too, DTLVS has some local contact persons.
  38. Seva Mandir faced this problem in several villages in the course of its work in Rajasthan (see Joshi, 1988; A.S. Mehta, 1996).
  39. Which is why Bharati repeatedly makes a distinction between 'truly voluntary organisations' and 'non-profit service organisations'.
  40. It is worth noting that the surname 'Bharati' is traditionally a lower-caste surname, which was consciously adopted by Sachchidanand (who actually hails from a Dhondiyal Brahmin family) to indicate his support for the Gandhian goal of removal of caste discrimination.
  41. Indeed, many villages, which do not officially have a VP, have some privileges in neighbouring VPs. For instance, many villages adjoining Dumlot and Dandkhil have privileges in the Dumlot–Dandkhil VP, upon payment of some charges to the VP.