Employment, migration and livelihoods in the Hill Economy of Uttaranchal

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CHAPTER I

RURAL EMPLOYMENT AND LIVELIHOODS: THEORETICAL DEBATE AND EMPIRICAL GAPS

I. THEORETICAL DEBATE AND EMPIRICAL EVIDENCES

The issue of rural employment has been extensively researched in the context of the developing world particularly after the well known 'dual sector' labour transfer model that was conceptualised by W. Arthur Lewis (1954) and later developed by Fei and Ranis (1964). The main contours of Lewis's model of expanding employment opportunities, which explicitly made a dual division of the economy into the modern capitalist industry and pre-capitalist agriculture, are widely known and, unlike most other models, took into account the institutional and economic milieu of Third World nations. The capitalist industry sector, which was also presumed to be governed by the competitive rule of the game, was the leading sector where capitalists reinvested their profits. The pre-capitalist agriculture sector was considered to be a passive reservoir of surplus labour which could be available to industry at a constant wage (i.e. an infinitely elastic supply of labour to the industrial sector was presumed initially). So long as labour was available at the constant wage, industry would reap profits, which would be reinvested to expand the capitalist sector. The limit to this process was set by the exhaustion of the surplus labour in agriculture when the wage in agriculture would attain a competitive level (equal to marginal product). This mechanism is shown to work for the benefit of both the sectors. On the one hand, as the surplus labour from agriculture gradually moves out, the productivity and earnings of those left behind increases leading to a flow of remittances from non-agricultural employment to rural households. On the other hand, the availability of surplus labour from agriculture, at a fairly low level of wage rates, helps the expansion of the non-agricultural sector.

The Lewisian perception, which took for granted an ever expanding demand for labour in the urban industrial sector, seems to be rudely shattered by empirical realities (Randhawa,1989; Bhardwaj,1994). The 'institutionalist'

characterisation of the industrial sector as 'competitive' and of agriculture as the 'pre-capitalist' reservoir of surplus labour not only oversimplifies the existing scenario but lends to analytically misleading conclusions (Bhardwaj,1994). For example, agrarian studies in India have amply demonstrated that the peasantry cannot be treated as a homogenous mass of producers, either as a passive reservoir of surplus labour or as independent producers facing the competitive markets.[1] On the other hand, industrial growth-led development strategy could not generate enough employment opportunities and there persisted the backlog of unemployment and underemployment. The evidence of increasing poverty and income inequalities triggered off the critical view of the industry-led growth philosophy. Moreover, the growth in the additions to the labour force are increasingly being employed in the agricultural sector itself and in the informal sector, with low levels of productivity; and thus, the price mechanism of resource transfers is not seen to work as effectively as in Lewisain or neo-classical framework. The explanation of migration of labour on the basis of rural-urban wage differentials is also questioned by empirical findings (see Bhardwaj, 1989).

The severe limitations of the Lewesian model attracted a spate of empirical work on rural employment in effect. This explained the shift in the rural labour force from farm to non-farm sector apart from attempts to perceive rural employment on somewhat new lines, i.e., processes of diversification vis-a-vis changing structure of rural employment. This is viewed in the development literature from two perspectives. The first is the rural growth linkage model originating in the mid-1970s in the work of certain influential writers on rural development (Johnston and Kilby, 1975; Mellor, 1976) and applied to the study of rural growth, employment and incomes in Asia and Africa. The second, in sharp contrast to the first perspective, is ‘distress induced’ diversification of employment (McGee, 1971; Vaidynathan, 1986), which occurs when the agriculture sector is unable to fully absorb the rural labour and the non-agricultural sector acts as a sponge for the excess labour.

[1] For a critique of such exercises, see Rudra (1967), Bhardwaj (1974), Rao (1992), Dasgupta (1999), Reddy (2002).

1. Growth Linkage Model

The growth linkage model views rising farm productivity and incomes induced by technical change as the source of diversification of employment and earning opportunities in rural areas. It is premised that technology-driven agricultural growth leads to several linkages—both production (forward and backward) and consumption—between agriculture and non-agriculture, which in turn results in the expansion of employment in the non-agricultural/non-farm sector. This alters the pattern of demand for goods and services and opens up opportunities for the further growth of employment in the non-farm sector (Chadha, 1994; Unni, 1998). Additionally, agricultural prosperity (in terms of increased crop output per capita of agricultural population) will enhance this demand for labour in agriculture, leading to better absorption of labour within the agricultural sector, reducing the spill-over of excess labour into non-agricultural employment (Vaidyanathan, 1986). A number of Indian studies support this development trajectory—growth of agriculture would stimulate growth and development of the rural non-farm sector (RNFS) (see particularly Hazell and Haggblade, 1993; Bhalla, 1993; Papola, 1987, 1994; Unni, 1991, Chadha, 1994).

'Prime Movers' outside Agriculture

In response to attempts at the empirical validation of growth linkage model, alternative hypotheses were developed, and need to look for additional prime movers outside the agricultural sector was emphasised (Bhalla, 1993). Whilst the importance of agriculture-led growth was acknowledged, the role of additional factors such as rural infrastructure, education/skill development of rural workers, urbanisation and government rural development schemes were also recognised.

Bhalla (1993, 1997) emphasises the importance of proximity to urban centers for rural livelihood diversification. In an assessment of district-level Census data she concludes that a switch in preference for urban-produced inputs has had a significant impact on the growth of non-farm sector in districts of high agricultural productivity. Papola (1992) stresses the role of rural towns in the employment of rural workers as diversification of rural non-farm enterprises was higher in regions where rural towns were more evenly spread than where there

were only a few concentrated settlement. He attributes this to the action of forward and backward linkage. More recently, based on the NSS region level data, Srivastav and Dubey (2002) also find that urbanisation had a strong impact on the growth of RNFE. Shukla (1991,1992) in Gujarat, Jayaraj (1994) in Tamil Nadu, and Eapen (1995) in Kerala have also found significant positive influence of urbanisation on rural non-farm growth, aside from its effects on rural-urban migration. Literature also refers to the significant contribution of urban centers in generating the process of rural-urban migration in search of non-farm employment.

In their analysis of growth linkages, Hazell and Haggblade (1993) highlight the importance of rural infrastructure in increasing the income multipliers of agricultural growth to the non-farm sector. Jayaraj (1994) and Narayanamoorthy et al. (2002) underscore the importance of the development of transport infrastructure for rural non-farm employment (RNFE) opportunities, while Singh (1994) points to its significance in rural electrification. Harris (1991) also highlights the need for a sound rural infrastructure to maximize rural growth linkages, as does Shukla (1992), who notes the beneficial impact of good roads, in particular on trading and non-household manufacturing, whilst household manufacturers were adversely affected.

According to Eapen (1995) the level of education played a significant role in generating non-farm employment in Kerala, allowing shifts in employment from the agricultural to non-agricultural sectors. Jayaraj (1994) and Basant (1993) observe a positive relationship between literacy and rural non-farm employment, while, Narayanamoorthy et al. (2002) refer to the 'education infrastructure induced effect' on the growth of RNFE. On the other hand, Mecharla (2002) finds a negative relation between literacy and traditional RNFE—which is a predominant feature of the RNFE activities in Andhra Pradesh.

The role of government development programmes and public expenditure in rural areas has also been viewed as an influencing factor in the growth of the rural non-farm sector (Sen, 1997). Notably, during the 1980s, slow agricultural growth coincided with both falling levels of poverty and rising wages.

Sen (1997) and Ghosh (1995) attribute this decline in poverty and rising wages to a rapid growth in the RNFS, itself a consequence of large government expenditure. While Sen (1997) stresses the importance of government spending for rural non-agricultural employment, Unni (1998) emphasises the diversity of the nature of government spending and questions the specific causality. Ghosh (1995) argues that increases in rural poverty following the Structural Adjustment Programme (SAP) in 1991-92 is also explained in terms of a reduction in government spending in rural areas such as rural employment schemes and rural development and fertilizers subsidy.

A number of studies have identified a combination of factors that influence the growth of RNFE. For example, Eapen (1995) in his extensive research in Kerala suggests that a high degree of commercialisation of agriculture, strong rural-urban linkages, increase in the proportion of marginal landholdings, the flow of remittances to rural areas and the growing level of literacy have contributed to the growth of RNFS in the state. Other identified determinants include the change in taste of rural consumers and levels of rural and extra-local demand (Hariss,1987, 1991; Vaidyanathan, 1994), competition from factory sector (Visaria and Basant, 1994) and landlessness (Basant, 1993).

The growth linkage approach has been criticised on the ground that it is based on the assumption about the responsiveness of rural non-farm employment to the growth in agricultural output. A vexatious fact is that over time, the labour absorptive capacity of agriculture has been shrinking. The consistently declining employment elasticity with respect to aggregate agricultural output from 0.54 during 1972-73/77-78 to 0.49 during 1977-78/1983 and further to 0.36 during 1983/87-88 readily testifies to the limitations of linking agricultural growth to the diversification of rural employment (Bhalla, 1993).

2. 'Residual Sector' Hypothesis or Distress-induced Growth

Vaidyanathan's study (1986) is considered seminal work which has sparked of a lively debate in the literature on whether growth in rural non-farm employment is a consequence of distress diversification, or is it a response to growing demand

resulting from the process of rural developments. He finds a positive correlation between non-farm employment and unemployment rate, and postulates that non-agricultural employment absorbed surplus labour when the potential of agricultural employment was limited, suggesting a distress-induced growth of the non-farm sector. Non-farm activities, generally geared to supplement local needs—as is the case in such situations—are characterised by seasonal fluctuations, low productivity and incomes, primitive technology and are basically subsidiary to local agricultural activities. In terms of sheer mandays of work, non-farm employment may appear to absorb labour; yet in terms of total or per day earnings, the distress is apparent for entire population, particularly for the rural poor (Chadha, 1994). However as a survival strategy, the poor households are engaged in low paying jobs because they have no other alternative often involving the whole family including women and children.

Various studies following that by Vaidyanathan (1986) have examined the 'growth-distress' argument, and the factors explaining regional variation of growth in the RNF sector. Unemployment, poverty and population pressure have been the principal factors that operate to push workers out of the agricultural sector.

Bhalla (1990) identifies two kinds of distress situations in which RNFS activities become residual labour force absorbers: supplementary workers who have no main occupation, but are engaged in subsidiary work to supplement household income; and those who are mainly engaged in a secondary activity. Bhaumik (2002) finds that RNFE grew more significantly in periods that witnessed sharp decline in farm employment. Saith (1992) argues that rural poor engage in non-farm activities in the labour and product market as a part of their household survival strategies. On account of very low levels of labour productivity (for technological and labour market reasons), poor peasant households work for exceptionally long hours on a regular basis in their multiple economic non-farm activities. Yet they remain 'income unemployed' since they are unable to earn even a subsistence level of income. Srivastav and Dubey (2002) find that there is an inverse but insignificant correlation between poverty

reduction and RNFE, which also implies a distress diversification in regions where poverty reduction has been insignificant and yet the RNFE has increased.

Conversely, Unni (1991), based on NSS data, finds no correlation between either the incidence of rural poverty, or percentage of landless households and non-farm growth and argues that lack of demand in distress regions in rural areas inhibits non-agricultural growth. Other state level studies have also demonstrated that growth in rural non-farm employment has not been due to distress (see Basant, 1993).

Likewise, Fisher et al. (1997) and Unni (1998) emphasize heterogeneity within the RNF sector, where different activities require different entry qualifications, and argue that recognition of such diversity is often lacking in earlier literature. The analysis of changes in the structure of occupations and labour earnings within the RNFS by Srivastav and Dubey (2002) shows a rising demand for RNFE goods and services that require higher skill levels with the rising rural income. Fisher et al. (1997) suggest that services such as retail trading, household manufacturing and personal services, which offer wages only slightly higher than that of agriculture, may also be performing a similar function. However, other activities such as manufacturing outside the household, transport, and a number of services are much more remunerative and belong to the "more productive and dynamic part of rural non-farm sector", responding to demand factors (p. 40). Likewise, while in agriculturally backward regions RNFS may act as a safety net for lean season employment, in agriculturally prosperous regions agricultural growth may support the RNFS by supplying raw materials for processing industries, generating demand for agricultural inputs, and by increasing rural incomes and thereby increasing demand for RNFS services and inputs. Papola (1992) further argues that the shift from self-cultivation in agriculture to casual work at a higher wage in the RNF sector renders the fear of casualisation of rural labour redundant.

Case studies also reflect a wide variation in the causes of occupational diversification as well as growth of RNFS. A micro study of marginal, small, medium and large farmers in Allahabad district of Uttar Pradesh by Singh and

Tripathi (1995) assessed the factors affecting the occupational shift from agriculture to non-agriculture. They conclude that for upper caste and large farmers increases in education, enhancement of per capita income and decreases in per capita availability of cultivated land are the main causes of occupational diversification. Small farmers were encouraged to take up non-farm employment as a consequence of uncertainty of returns to agricultural cultivation. For the marginal and landless groups, mechanisation, industrialisation and urbanisation are found to be most influential factors, in addition to poor conditions (low pay, seasonality, etc.) of wage employment in the agricultural sector for their diversification into non-farm employment. Furthermore, small and tiny industries provide alternative sources of productive employment in rural areas. The educated unemployed youth irrespective of their caste background, do not wish to participate in agricultural and related activities.

Based on micro study of semi-arid village in Gujarat, Shylendra and Thomas (1995) find that growth in different RNFS activities are due to both developmental pull factors, and distress-induced push factors, which sometimes work in mutually reinforcing ways. They have also observed a significant occupational diversification.

Wage Rates

Another line of argument to counter the residual sector hypothesis is based on the empirical trends in real wage rates. Many studies have shown that from the mid-seventies to the mid-eighties, the real wage rates in agriculture tended to rise slowly and steadily (Unni, 1988; Jose, 1988; Bhalla, 1993; Vaidyanathan, 1994). The prime mover of this rise in agricultural wage rates has been found to be the diversification of the workforce into the non-agriculture sector, rather than the growing labour productivity in agriculture (Bhalla, 1993). This also reflects the downward rigidity of wages in relation to prevailing underemployment in agriculture, and thus does not fit into either classical or neo-classical framework. Sen (1997) finds the growth in non-farm employment as a reason for falling poverty and rising wages—mainly associated with the government

interventions—in rural areas, thus discrediting the residual sector hypothesis. However, it merits mention here that as there is a large section of self-employed workers in the non-agricultural sector, the argument of declining wages due to distress induced increase in supply of wage labour to the labour market will not hold, since the level of wage rates does not influence employment of workers in this segment. Therefore, the residual sector hypothesis cannot be written off purely on the basis of empirical observation of real wages and wage ratios alone.

II. UNDERSTANDING DIVERSIFICATION IN THE FRAMEWORK OF RURAL LIVELIHOODS

The review of literature on diversification of rural workforce shows that the majority of the studies have concentrated on analysing causes of the growth of rural employment, both farm and non-farm at macro level (state, district). The causal factors identified are therefore factors emanating from either the agriculture sector or outside it within the rural areas. However, for understanding the determinants of diversification in employment and income in rural areas, it must be remembered that an economy functions in an integrated way wherein agriculture and non-agriculture sector are inter-linked and rural and urban areas are closely interdependent (Bhardwaj, 1989; Unni, 1994).

The available evidence on employment diversification shows that rural households undertake, often simultaneously, a variety of agricultural and non-agricultural activities aimed at improving their overall well-being. In addition, individuals within each household may participate in multiple economic activities. Most of the studies on employment diversification in rural areas, however, say little on this whole issue of livelihood strategies that rural households adopt with varying objectives, i.e., survival, stabilisation and growth (Unni, 2000). This only emphsises that studies trying to explain the phenomenon of diversification must incorporate perspectives which go beyond the narrow differentiation process of 'growth linked' or 'distressed induced growth' in rural employment (Koppel and Hawkins, 1994; Unni, 1994). Understanding rural diversification, therefore, becomes more meaningful in a livelihood framework.

Livelihood is defined as comprising the capabilities, assets and activities required for a means of living (Chambers and Conway, 1992). Eliss (1998) defines livelihoods in terms of a whole range of activities that households undertake for maximising their well-being. And the ability to peruse different livelihood strategies is in fact determined by capabilities and assets of people. Capabilities include human capital, i.e., the skills, knowledge, ability to labour and good health, while assets include both material and social resources. Natural capital like land and economic capital (cash, credit/debt, savings, and other assets including basic infrastructure and production equipment and technology) provide the base for livelihoods. Social resources include networks, social relations and social claims and affiliations upon which people draw when pursuing different livelihood strategies requiring co-ordinated actions.

Within the livelihood framework, three broad clusters of livelihood strategies are identified. These are agricultural intensification/extensification, livelihood diversification and migration. These broadly cover the range of options open to rural people.[2] Within a livelihood framework, the rural households may be categorised by their circumstances and economic goals into three phases: survival, stabilisation and growth. Survival is the goal of the poorest. They try to acquire multiple use commodities and engage in income generating and saving activities. Stabilisation is a later phase and the goal of the slightly better off households to attain livelihood security. They try to acquire additional assets, diversify livelihood mix to spread risks and increase flexibility. Growth is the final phase after achieving basic security. The household opting for this goal can afford to invest in riskier commercial enterprises with higher returns (Grown and Sebstad, 1989). Livelihood diversification, thus, is “the process by which rural families construct a diverse portfolio of activities and social support capabilities in their struggle for survival and in order to improve their standard of living” (Ellis, 1998, p. 4).

The literature identifies a range of different motives and pressures that to an extent helps to explain why diversification occurs and the patterns of diversity

[2]see Scoones (1998) for a livelihood framework and Ellis (1998) for livelihood diversification.

that are observed. Some main determinants of diversification are seasonality, differentiated labour markets, risk strategies, coping behaviour, credit, market imperfections and intertemporal savings and investment strategies (Ellis, 1998).

Seasonality is identified as an important determinant of diversification that all rural households confront (Chambers, Longhurst and Pacey, 1981; Chambers, 1982; Agarwal, 1991). On its own it explains many of the patterns of diversity in rural household incomes, especially those involving on farm diversity and off-farm agricultural wage earnings. For coping with the seasonality factor the existing literature throws light on the mechanism adopted by the households to a range and variety of methods. These broadly fall upto five categories (Agarwal,1991) : (a) diversifying sources of income including seasonal migrations; (b) drawing upon common resources---village common lands and forests; (c) drawing upon social relationships--- patronage, kinship, friendship – and informal credit networks; (d) drawing upon household stores of food, fuel, and so on and adjusting current consumption patterns; and (e) drawing upon assets. These are not mutually exclusive and are typically adopted in combination.[3]

Income diversification as a risk strategy is usually taken to imply a trade-off probability of income failure, and a lower total income involving smaller probability of income failure (Roumasset et al., 1979). In other words, households at this stage are risk averse, and are prepared to accept lower income in the interest of greater security. Research into on-farm diversity has sometimes demonstrated that this is not strictly true; that diverse on-farm cropping systems such as mixed cropping and field fragmentation of benefit from complementaries between crops, variations in soil type and differences in micro-climates that ensure risk spreading with little loss in total income (Walker and Ryan, 1990).

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[3] For detailed analysis of coping with seasonality, see Agarwal, 1991, pp 176-206.

III. LIVELIHOODS AND MIGRATION

This section focuses on the issue of migration as a part of the strategies of labour use adopted by rural households in their pursuit of a better livelihood. Considerable literature is now available on migration, which provides some interesting insights into the strategies adopted by individuals, households or communities to upgrade their livelihoods.[4] Migration decisions have been viewed variously as a 'coping mechanism' for poor households and as an 'accumulation strategy' for the better-off households. The theoretical literature and empirical evidence relating to migration decisions are grouped into two approaches: (i) individual utility maximisation behaviour (Todaro, 1969; Hariss and Todaro, 1970) and (ii) inter-temporal family contracts (Stark, 1991; Stark and Bloom, 1985; Stark and Lucas, 1988).

In the case of the former, the decision to migrate to cities would be determined by wage differentials, plus expected probability of employment at the destination. Rural wages in these models are equal to the marginal productivity of labour (Lewis, 1954; Harris and Todaro, 1970). High rural-urban migration can continue even when high urban unemployment rates exist, which are known to the potential migrants. If the migrant anticipates a relatively low probability of finding regular wage employment in the initial period but expects this probability to increase over time, it would be rationale for him to migrate. The neo-classical model of migration views migratory process as a means of effecting an efficient geographical reallocation of labour based on the private choices of individuals for maximizing returns. It thus ignores the fact that migration is not always based on a strategy of an income maximization, rather it is a survival strategy which is also greatly influenced by many non-economic factors such as pressure of population, inequalities in distribution of land ownership, institutional mechanisms which discriminate in favour of owners of wealth and technological change biased against labour (Oberai and Bilsborrow, 1984).

[4] For detailed review of migration studies see Srivastava and Sasikumar (2003) and de Haan (2000).

Inter-temporal family contract models of migration (Stark, 1980; Stark and Bloom 1985; Stark and Lucas, 1988) view migration as a strategy of spreading risk (Stark and Levari,1982) by households and imperfections in rural capital markets (Stark, 1982; Collier and Lal, 1986). The basic premise of these alternative models, which are based on household utility maximisation, is that the decision to migrate is not taken by an individual, but the household members also have a role to play in doing so. Remittance received from migrants is viewed as an inter-temporal contractual arrangement between the migrant and the family (Strak, 1991). Stark and Lucas (1988) suggest that labour migration by one or more family members can be an effective mechanism to self-finance local production activities and acts as a self insurance against local income risks. Stark and Levari (1982) also argue that migration has a risk reducing and insurance enhancing effect on production and investment decisions, while Hoddinott (1994) models migration as an outcome of a joint utility maximisation strategy by the prospective migrant and the other family members.

In India, apart from testing the validity of the individual utility maximisation behaviour and family contracts models, much of the discussion on rural-urban migration tends to concentrate on the attributes, personal motivations, individual characteristics of migrants, and try to seek explanations for the migratory process in terms of such individual expectations and perceptions. Migration studies have focussed on determining the relative importance of migration in the framework of push-pull models (of migration) as developed by Lee (1966), which is a logical extension of Todaro-type analysis. Income differentials are seen as the major pull factors, while seasonality, risk, market failures, erosion of assets and landlessness are seen as push factors. Most of the micro studies on migration in India suggest that `push' factors like inequality in land ownership, poverty and agricultural backwardness (Oberai and Singh, 1983; Dasgupta and Laishlay, 1975; Breman, 1985; Bora, 1996; Lipton, 1980) are mainly responsible for out-migration.

It is not our intention to review the vast available literature on the theme of migration but only to indicate how this process, as a part of livelihood strategy,

could be integrated, in our framework. Who migrates, what pattern and type of migration is generated, what are its consequences—short and/or long term—for the livelihoods of the households essentially depend upon the 'capabilities' and 'asset base' of rural households, overall demand for labour in the village, work situation and conditions of labour at the place of destination and access to job opportunities through information. Given this framework, migration is at best a 'coping mechanism' for poor households by spreading risk spatially and occupationally, whereas for other (better off) households it serves as an appropriate accumulation strategy. This is best analysed by taking the household as a unit.

Research on the effects of migration on areas of origin is relatively scarce, but it is clear that out-migration usually does not radically transform poor areas (Srivastava, 1998). Rather, it may retard the overall development process and impair the whole social fabric as the able bodied male out-migrate in large numbers in search of their livelihoods. This has also been observed in the hill region of Uttaranchal where the net benefits from outmigration turn to be negative (Bora, 1996). Since in most of the cases migration is considered as a distress induced strategy for survival, rather than for effecting a qualitative change in livelihoods. Remittances are viewed as helping to stabilize the petty household at a survival level and hence play the ameliorative role rather than provide a boost to the economies of most households. Similarly, out-migration does not lead to a tightening of the labour market at the source areas (Lieten and Srivastava, 1999). On the other hand, there is also evidence of the replacement of out-migrant male labour by female and even child labour (Srivastava, 1998).

IV. LIVELIHOOD ISSUES IN THE CONTEXT OF MOUNTAIN AREAS OF UTTARANCHAL

The state of Uttaranchal is predominantly a mountainous region. Among the 13 districts, 10 are mountainous and account for 84 per cent of the geographical area and 51 per cent of the population of the state. More than 85 per cent of the population in these hilly districts resides in rural areas. Rural households in mountain areas of Uttaranchal are predominantly dependent on subsistence

agriculture for their livelihoods with features of 'pre-capitalistic' economy, which has been vividly described in the writings of Adam Smith.[5] Features such as a poor productive base, limited absorptive capacity, limited linkages to use local produce to strengthen the local economy in a value-added chain and unfavourable institutional and market mechanisms leading to accentuation of the phenomenon of unequal exchange with other areas are, more or less, common to most poor areas. However, what makes the situation in mountain areas qualitatively different than other areas are their unique physical 'specificities', viz., inaccessibility, fragility and marginality.[6] Their inaccessibility in terms of lack of access to infrastructure, markets, technologies, and information is not only a cause of their underdevelopment, but is itself a facet of poverty in terms of isolation and non-participation in wider social, political and communication processes (Papola, 2002). It is often said that mountains are rich in resources. The fact, however, is that usable resources are extremely limited. Only 14 per cent of geographical area is available for cultivation. Population density on cultivated land is very high at 1132 persons per square km. Thus, the availability of arable land per person is extremely low even with a very low density of population, and that too on slopes and thus is not suitable for the modern farming methods applied elsewhere. Most of such land is marginal[7], fragmented, scattered and rainfed, owning to which fertility is generally poor. Food insecurity, because of both limited availability and poor fertility of land and difficulty in delivering food from lowland areas, is a common feature in many parts of mountain districts in the state (IDFC, 2002).

Resources in which mountains are described as 'rich', such as forests, minerals and water, are not always accessible to mountain people. Besides the difficulties in physically accessing them, they are mostly restricted by legal and institutional arrangements by local communities for various reasons, including

[5] See Bhalla (1990) for a more description about Adam Smith's writings on the features of pre-capitalist economy of England.
[6] These specificities constrain the development. Other 'specificities' , namely, niche and human adaptation offer opportunities for development. For a detailed impact of these 'specificities', see Jodha (1990 and 2000).
[7] More than 80 per cent land holdings are marginal (less than one hectare--alone 50 per cent

commercial and environmental ones. And most incomes flow out of the mountains (Papola, 2002). Besides this, the access to natural resources, though limited, is constrained by lack of access to markets and traditional techniques.

A limited resource base, further limited by the constraints on its use due to fragility, is another dominant characteristic of mountain areas. Use of non-crop, non-forest, marginal lands, even where permitted, is not very productive because such land is usually degraded and cultivation is often hazardous due to its fragile nature. Infrastructure such as roads, that constitute 'lifelines' for most mountain people, is often not dependable because of natural hazards and blockades. Fragility and high incidence of natural hazards make the lives of people insecure and vulnerable and often pose a threat to the very means of survival and livelihood such as agricultural lands, crops, and shelters, besides transport and communication channels. In other words, maintenance of livelihoods, even at the current level, is precarious and danger of relapse into the trap of poverty is ever imminent (Papola, 2002). Thus, Mellor's (1976) description of environments where output is so unresponsive to initial applications of labour to land that the average product never rises above a subsistence level is true for mountain region of Uttaranchal. Also, the demand for labour in agriculture may be the outcome of a social taboo on households belonging to higher castes, like some Brahmin households in Uttaranchal, ploughing their own fields.

Like agriculture, livestock production is carried out mainly to meet the household requirements of milk, *ghee*, etc., and supply of manure to agriculture. This is again adversely affected by depleting common property resources.

Since the mountain agriculture sector predominantly remains virgin to technical changes, the 'growth linkage theory' could not be applied therein. The growing population pressure on the cultivated land in the mountain areas also forced many rural households to intensify and diversify their activities in Boserup's (1965) framework of analysis. The ability to diversify is again seriously jeopardized by the institutional bottlenecks, which impeded the process of development and consequently the creation of employment opportunities.

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being sub-marginal land holdings (less than 0.25 hectare) (GoUA, 2003).

There are evidences to show that in mountain regions a higher degree of diversification among rural households may purely be a 'distress syndrome' with little impact on the improvement of household income. A study by Sharma et al. (2001) on the extent of diversification under different scenarios of agricultural development in Himachal Pradesh finds that there is no pronounced and systematic relationship between the different categories of households and the degree of their livelihood diversification—the low income households have larger number but low yielding sources of livelihoods. The study broadly shows that higher level of diversification does not necessarily lead to higher level of income.

Mountain districts in Uttaranchal are virtually devoid of any major industry. As a result, the share of workforce employed in manufacturing is abysmally low at 2.5 per cent in the mountain districts of the state. The situation in rural areas is worst. Thus, most of the non-farm employment in the mountain districts is limited to services and trade and business. Though, there has been a growth in the number of own-account small units, these have been mainly in petty trade and business, which in turn have a very low potential for additional employment generation in majority of the cases.

The high work participation rate of females in rural areas of Uttaranchal as compared to the national average is a manifestation of poverty vis-à-vis their centrality in a household economy. Females are overburdened with long hours of back breaking work and year round drudgery in household as well as productive activities. They normally work for about 12-14 hours a day. Male-specific out-migration has further added to their drudgery (Pande, 1996). On the other hand, there is a lot of idle labour, particularly among males. Studies show that about 45 per cent of persondays remain unused, the proportion being higher for men (63 per cent) than for women at (34 per cent) (Bora, 1996; Khanka, 1988). Women's efforts and energies are mostly spent without commensurate returns and could be available for more productive and socially useful purposes if technological, economic and institutional solutions were found to reduce the time taken for and drudgery of their work to satisfy basic household needs. Men have little productive work beyond what is 'assigned' to them in the context of so-called

gender-based division of labour. Thus, most labour is not productively used and this is reflected in the high incidence of underemployment and 'disguised' unemployment (Papola, 2002).

Lack of productive employment opportunities in mountain areas in Uttaranchal has forced rural households to seek their livelihoods through out-migration, mostly of adult males.[8] However, the incidence of out-migration has been uneven across the various population groups as it is mainly confined to those belonging to upper castes and the educated ones, whereas the poor households, mostly belonging to Scheduled Castes, are generally unable to bear the cost of migration. At the same time, the slow growth in employment opportunities in urban areas during the past and more so in the 1990s has limited the opportunities for out-migrants from rural areas and, thus, much of the rural to urban migration is a supply-driven phenomenon.

Given the constraints which land posed on the development of the mountain region, education has been regarded, historically as crucial by the village society for securing better livelihoods outside the region, which in turn is envisaged to ameliorate the hardships of mountain life. The households' strategy has been to educate their male members for jobs outside agriculture, and to pay less attention to their females' education as their role is confined to agricultural works within the households.[9] This discriminatory 'human capital development approach' has also been thwarted by the tightening labour markets outside the villages and unequal rewards for those with similar education and training. The ability to diversify livelihoods through migration is again constrained since the majority of the potential out-migrants possess hardly any vocational/technical skills despite their higher educational levels. This in turn reflects on their earnings—except for a small proportion of out-migrant workers in government jobs (such as army and para military forces), most of them are employed in low paid occupations in the urban informal sector with hardly any social security. This

[8] Studies by Juyal and Bisht (1985), Whittakar (1984), Khanka (1988) and Bora (1996) report very high incidence of out-migration among the rural households in the mountain region.
[9] This kind of discrimination in the education of females is common among all regions in India, and is more so in backward regions.

also restricts the overall flow of remittances back to their rural households. Though remittances contributed nearly 40 per cent of household income (Khanka, 1988), a larger share of these is being used for meeting the daily consumption needs of the households. And most of these consumption items are not produced locally. Thus, remittances could hardly bring any significant benefits to the rural areas of the mountain region of Uttaranchal in terms of promoting private investment in developing local resource base. In fact, the net benefit from migration has been lower than its social costs (Bora, 1996).

The development prescriptions emanating from labour market theories and empirical studies do not focus much on the 'mountain specificities', which affect the whole range of livelihood options. For example, the conventional theory of development postulates providing infrastructure for development, which brings a shift in economic structure from one oriented towards subsistence and self-sufficiency to one of commercialisation, specialisation, and trade. Providing infrastructure, however, does not in itself induce the development of income-generating activities in mountain areas. The linkages that develop on their own with the development of infrastructure in the plains do not easily materialise in the hills (Papola, 1996). On the contrary, development of infrastructure sometimes leads to more 'backwash' than 'spread' effects, through extraction and drainage of mountain resources for profit-making elsewhere. Thus, roads, for example, which have led to changes in cropping patterns through introduction of more remunerative crops, faster development of local resource and skill-based products, and better financial returns as a result of access to markets in the villages in the plains, have only succeeded in bringing about a change in consumption patterns in favour of urban products paid from remittances from the increasing number of migrants, with little or no impact on the production economy of hill villages (Papola, 1996).

How long can agriculture continue to provide livelihoods to the larger additions in the labour force in future? This issue is a subject for debate and discussion as land size in itself is the biggest constraint to providing livelihoods. Also, the slow growth in employment opportunities in urban areas will be unable

to absorb the migrant workforce from rural areas. At the same time, much of the expansion in rural non-farm employment is attributed to the 'distress conditions' in agriculture, which yield very low earnings. It is also argued that rural areas do not offer any major advantages for the pursuit of non-farm activities due to technology constraints and scale of operation. This is the dilemma of providing livelihoods in rural areas.

There is strong evidence to suggest that diversification of cereal-based agriculture into fruits and vegetable production has potential to provide remunerative employment to mountain cultivators and preponderance of marginal holdings poses no constraint for such diversification (Chand, 1996; Maikhury et al., 2001). Significantly, such diversification, though limited in very few pockets, has considerably reduced the out-migration of able bodied youths (Badhani, 1998). Above all, problems of food insecurity and inherent institutional weaknesses are found to be responsible for not harnessing this potential in the mountain region in Uttaranchal.

The higher incidence of out-migration does not mean that the rural areas in mountain districts do not face labour scarcity. In fact, there is a seasonal shortage of labour in unskilled and semi-skilled occupations, which is increasingly being met by the outside labourers—mostly inmigrants. For example, the growing construction activity in the mountain districts in Uttaranchal in recent years, both in public and private sector (mostly in housing and bridge construction), has led to a growing demand for skilled labour. Since most of the local labour does not possess the skills required for such activities, the in-migrant labourers even from remote states like Bihar are successfully meeting the demand. Similarly, Nepalese labourers mostly meet the demand for seasonal unskilled labourers both for agricultural and non-agricultural works. Thus, the argument of 'under-formed labour markets in hill areas' by Bhalla (1990) is rather weak in the context of the rural household economy of Uttaranchal. Also, there is an increasing number of rural households in mountain districts in Uttaranchal who not only 'hire in' but also 'hire out' labour, and thus, may not be explained in the classical, Marxian, neo-classical or institutional framework separately.

Thus, livelihood resources in rural (mountain) areas in Uttaranchal are more vulnerable to income insecurity than in other parts of the country. Risk element is high in local land-based income generating activities owing to larger frequency of floods, natural calamities and non-availability of protective measures. Maintenance costs of livelihood resources, particularly land is exceptionally high. Access to markets is again affected by high incidence of natural risks (Papola, 2002). Also, the risk of cut back in remittances from out-migrants can further add to the vulnerability of livelihoods of rural households in Uttaranchal.

V. NEED FOR THE STUDY

Most of the studies on the erstwhile Hill region of Uttar Pradesh have been preoccupied with the study of out-migration and its contribution to household income.[10]. While some termed hill economy as 'money order economy' (Dobhal, 1987), other termed migration as not being beneficial as the costs of migration exceeded the benefits from it (Bora, 1996). There have been few micro studies on rural employment in the erstwhile hill region of Uttar Pradesh and these have been also preoccupied with the study of farm employment and out-migration.[11] Most studies focussed on 'rural employment' rather than 'total employment' for the households, which also includes daily commuting and out-migration. Some studies have focused on the backwardness of the district and as a backdrop includes the study of agriculture, cropping pattern, labour use, its low productivity, income, etc. These studies found most of the crops uneconomical in terms of net returns (Tripathi, 1987; Swarup, 1991a, 1999b). Few studies deal with the improvement in productivity through use of modern inputs in agriculture and diversification in farm production (Chauhan, 2001; Badhani, 1998). Surprisingly there is no study based on the secondary data on the structural shifts in employment and earnings within the state in general and rural areas in

[10] See for example (Rawat, 1983; Whittakar, 1984; Juyal and Bisht, 1985; Dobhal, 1987; Khanka, 1988; Dhyani, 1994; Bora, 1996)

[11] See for example Khanka (1988). These studies were confined to a particular division (Garhwal or Kumaon) and necessarily did not cover the entire hill region (erstwhile belonging to Uttar Pradesh).

particular during the past three decades or so on. More importantly, hardly any study has been initiated in the context of a mountain economy of Uttaranchal that could exclusively focus on the core issue of livelihood strategy that rural households adopt through resorting to multiple activities, diversifying within farm sector as well as from farm to non-farm sector; and through out-migration. It is being increasingly realised that apart from studying the structural shifts in employment in general and rural employment in particular at the macro level, a comprehensive fieldwork is required to examine the issues of employment and livelihoods diversification among the rural households in the mountain areas of Uttaranchal—the issues which are hardly covered by the secondary data. The present study would be a modest attempt to fill this gap. As we are aware, the main issue behind the struggle for separate state of Uttarakhand[12] was the aspiration of mountain people from the new state for creating gainful employment opportunities through people centered development programmes. With the formation of the new state of Uttaranchal, undertaking such study also becomes useful as it could provide a valuable feed back for the suitable policy interventions by identifying the emerging areas with employment potential.

VI. OBJECTIVES

Keeping in view the above theoretical and empirical overview, the general objective of the study is to have a better understanding of the dynamics of livelihood strategies that are being adopted by the rural households in the mountain region of Uttaranchal. In order to meet this broad objective, the study will attempt to:

(i) Analyse the pattern and structure of employment;

(ii) Assess the nature and extent of multiple employment and its determinants;

(iii) Examine the nature and structure of unemployment and underemployment among various socio-economic groups;

[12] The name was popularly coined during the struggle for separate statehood, which was later renamed as Uttaranchal at the time of formation of the state.

(iv) Assess the nature and causes of migration (out-migration and return migration), and its impact on household employment and income;

(v) Examine the diversification in livelihoods, its determinants and impact on household income;

(vi) Examine the impact of agricultural diversification on employment, wages, earnings and propensity to migrate;

(vii) Examine the impact of public employment generation programmes on employment and income; and

(viii) Suggest a suitable development strategy with a focus on developing sustainable livelihoods.

VII. METHODOLOGY

To achieve the above objectives, detailed data would be required on various parameters of employment, household assets, migration and income. Accordingly, both the secondary and primary data have been used for the study. Primary data have been collected to supplement the secondary data.

Secondary data has been collected from Population Census, National Sample Surveys, Economic Census and State Plan documents. Besides these, information has been collected from research studies both by institutions and individuals and through reports of different government departments.

However, a larger analysis of this study is based on the primary data, collected through a specially designed questionnaire, since the available secondary data sources do not provide the required information on the livelihood strategies that various types of households adopt in rural areas. Information has been collected on various socio-economic and demographic aspects of the households. The emphasis has been on collecting information on the type of employment for the various categories of households, its quality in terms of availability and income, occupational diversification, role of women in augmenting the households' labour requirement, availability of livelihood assets, migration, agricultural diversification, un-underemployment and benefits under government programmes. Apart from this, information has also been collected at the village

level on aspects of infrastructure such as irrigation, education, health, transport and other facilities, cropping pattern, wages, etc.

Sample Selection

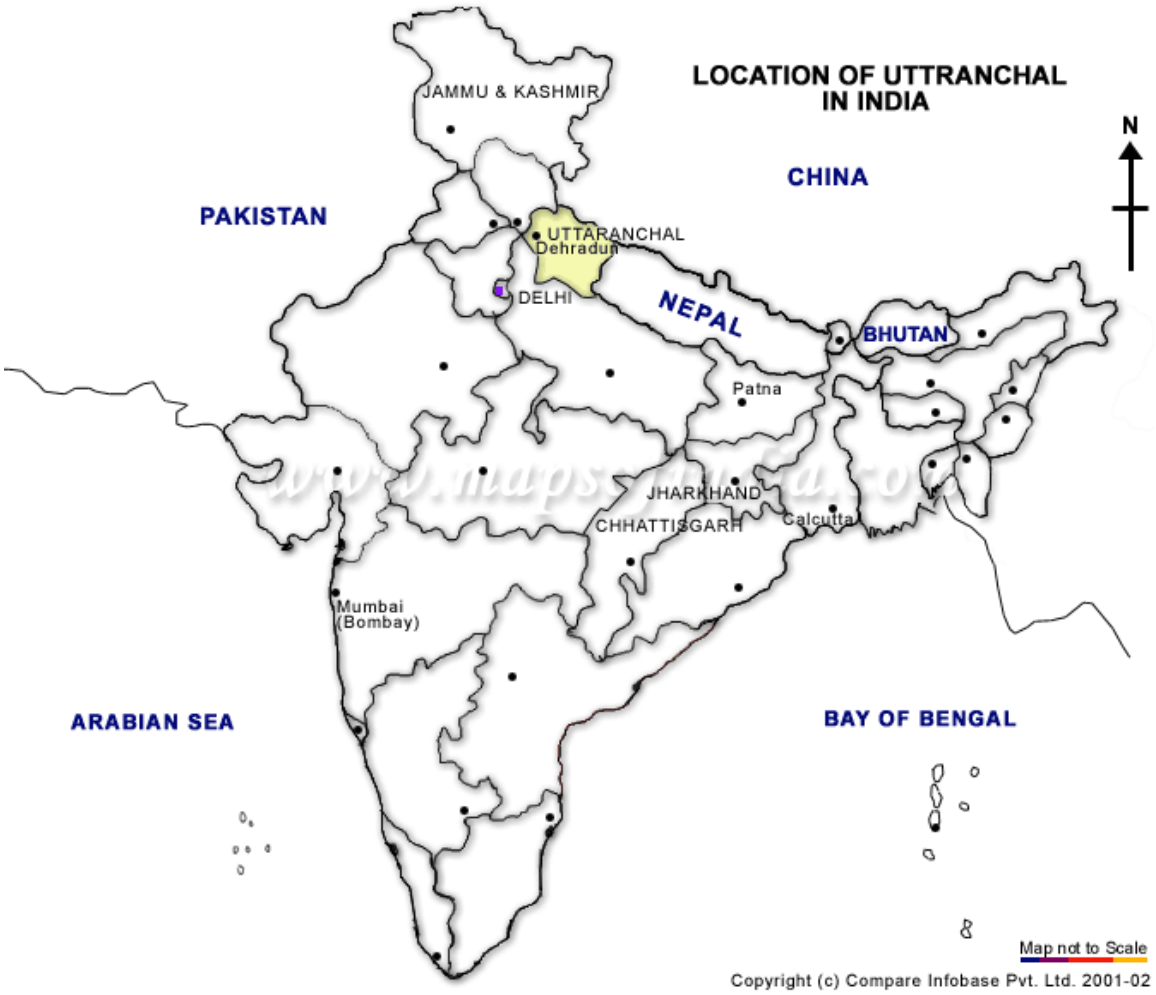
There are 13 districts in Uttaranchal—10 with hill topography and the remaining three have plain areas. Since the present study is confined to the rural areas of hilly districts of Uttaranchal, it does not cover Dehradun, Hardwar and Udham Singh Nagar, as these are mainly located in plain areas (see map). The hilly districts fall under two administrative zones, viz. Garhwal and Kumaon. Chamoli, Garhwal, Rudrapryag, Tehri Garhwal and Uttarkashi belong to Garhwal division and Almora, Bageshwar, Champawat, Nainital and Pithoragarh to Kumaon division. Using the economic development index as calculated by Singh (1997) for the districts of Uttar Pradesh, we ranked all the hilly districts[13] separately for Garhwal and Kumaon region. From each region we have selected two districts, one with highest value of economic development index and the other with the lowest value. This has been done to ensure representation of broad characteristics of mountain economy of Uttaranchal. The four selected districts included Chamoli and Garhwal from Garhwal region and Almora and Nainital from Kumaon region (see map).

In each of the sample district, we clustered all the Census villages[14] into three broad clusters on the basis of distance from district headquarter; villages situated within the distance of 10 km and connected by motor road are termed as 'peri-urban'. The second stratum comprised of villages 10 km to 150 km away from the district headquarter and having road connection. These are termed as 'semi-interior' villages. The last stratum comprised of villages at the same distance of 10 km to 150 km away from the district headquarters but not connected with the road. From each cluster one village was selected randomly

[13] The districts of Bageshwar, Champawat, Rudraprayag and Udham Singh Nagar have been carved out of Almora, Pithoragarh, Chamoli and Nainital, respectively. Due to non-availability of data on various socio-economic parameters for these new districts, the parent districts were considered for the selection of sample.

[14] Only villages with population of more than 200 persons were considered.

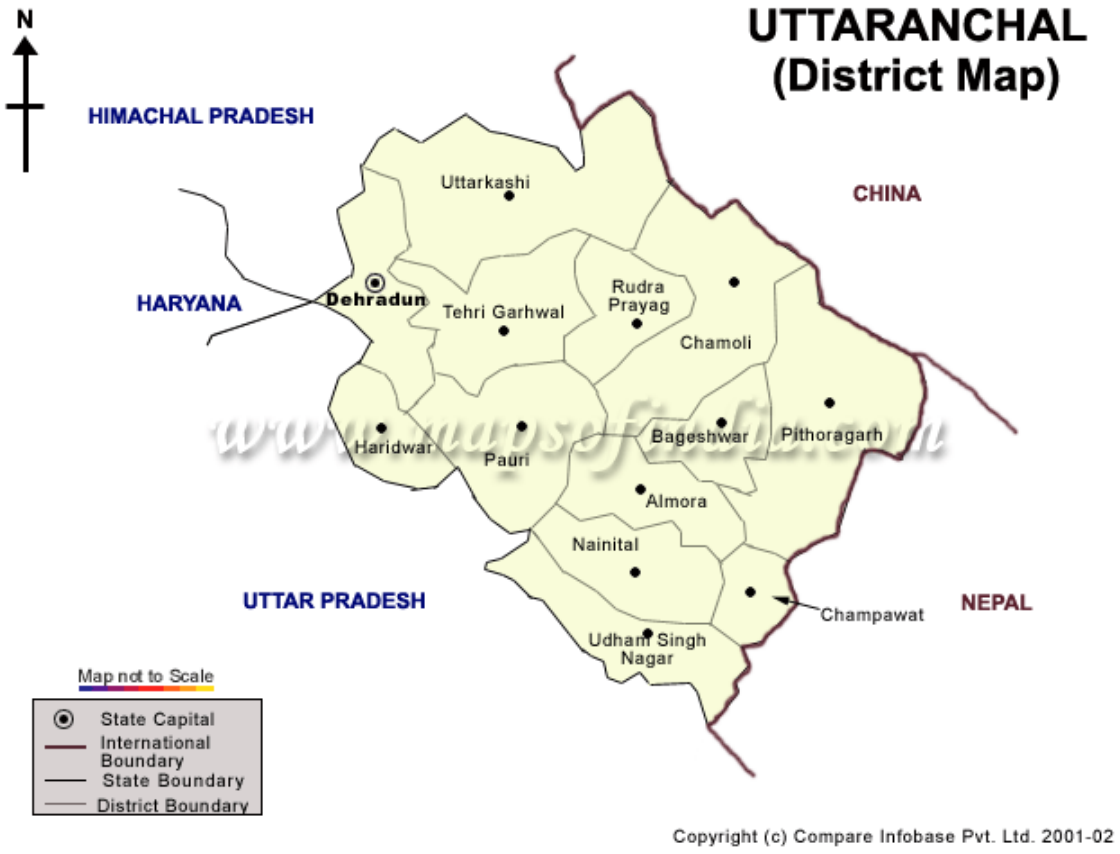
within the district. Thus, three villages were selected from each sample district. In all, twelve sample villages were selected for the study.



In each sample village, all the households were listed along with their land size.[15] Thereafter, all the households in the sample village were stratified into six land class categories:[16] landless, upto 0.5 acre, 0.5 to 1.5 acre, 1.5 to 2.5 acre, 2.5 to 5.0 acre and more than 5 acre. A sample of 35 households has been finally selected through the proportionate circular random sampling in each village. In the ultimate analysis we have to discard some sample households as

[15] This information was collected from the revenue records of the village *Patwari*.
[16] This has been done purposively to capture the marginality of land holdings as more than 80 per cent households own marginal holdings (size less than 2.5 acre) and more than half own even less than one acre land.

the desired information was not satisfactory, and we confined our sample size to 399 households. The information relating to sample households have been collected through a pre-tested structured questionnaire.



The village schedule sought information on cropping pattern and changes therein over the past ten years, wage rates, mode of wage payment, infrastructure facilities, daily commuting, permanently migrated households, number of in-migrant labour, and use of contact labour in the village. The household questionnaire collected detailed information about the household and its members, i.e., assets—both productive and consumer durable, age, education, employment, time disposition of labour in various types of employment, income and its sources, migration including return migrants, and indebtedness. Efforts were made to capture the incidence of seasonal employment/unemployment among the household members. The basic idea behind this exercise is to capture the livelihood strategies that are being followed

by the sample households in the rural areas of the mountain districts in Uttaranchal.

VIII. CHAPTER PLAN

The study begins with a brief overview of the theoretical and empirical evidence on employment and livelihoods for rural households in Chapter I. A macro picture of the economy of Uttaranchal is presented in Chapters II and III based on the secondary data. The former analyses the composition and trends in the growth of state domestic product, land use, cropping pattern and industrial development and the latter (Chapter III) examines the growth in population, labour force and workforce in detail along with educational development in the state. It has been argued that despite the scarcity of productive assets like land in the mountain region in Uttaranchal women's participation in the workforce is very high—a common feature which they do so to support the livelihoods of their households. Returns from such higher work participation, however, are abysmally low as reflected in low productivity levels. Chapter IV delineates the socio-economic characteristics of the sample households with a focus on access to livelihood assets. It is seen that most of the households are poor in terms of livelihood assets. The issue of the availability of employment, its characteristics and determinants are discussed in Chapter V. It shows how different features of households shape the quality of their workforce and determine ultimate performance in the labour market and how the rural households struggle to maintain and improve their employment and income. The issues of multiple employments and occupational mobility also form the core of the Chapter. It is also argued that unlike the classical as well as neo-classical framework of labour use and employee-employer relations, many households sell out their labour as well as use the hired labour.

The themes, migration and remittances, are discussed in Chapter VI. It shows how out-migration is increasingly becoming an important channel for livelihood diversification among the rural households given the lack of remunerative employment opportunities within their villages and how it is

augmenting households' income. However, the propensity to migrate is determined by many factors, which are also analysed in the Chapter. Similarly, the Chapter analyses the determinants of propensity to remit. Chapter VII focuses on the issue of diversification in livelihoods, its determinants and the outcome of a livelihood strategy in terms of per capita income of household. The Chapter also discusses how switching over to more remunerative non-farm livelihoods leads to a reduction in the incidence of multiple employment. Chapter VIII argues that diversification of livelihoods based on traditional cereal-based agricultural into horticulture and vegetable production offers tremendous scope for enhancing employment and income of the households. Finally, the concluding Chapter apart from presenting summary of major conclusions delineates the policy implications for improving the livelihoods of rural households in Uttaranchal.

CHAPTER II

UTTARANCHAL ECONOMY: GROWTH AND STRUCTURE

I. INTRODUCTION

Uttaranchal came into being as the 27th state of the Indian union on November 9, 2000 as a culmination of long-standing struggle by its people for separate statehood. It comprises of thirteen erstwhile districts of Uttar Pradesh namely, Chamoli, Dehradun, Garhwal, Rudraprayag, Tehri Garhwal, Uttarkashi (in Garhwal division), Almora, Bageshwar, Champawat, Nainital, Pithoragarh, and Udham Singh Nagar (in Kumaon division) and Hardwar (in Saharanpur division). The State, the 11th hill state in India, has two administrative divisions, viz., Garhwal and Kumaon. Hardwar is now in Garhwal division. The state is divided into 49 tehsils and 95 development blocks. It has 15620 habitat villages, 6561 Gram Sabhas and 671 Nyay Panchayats. According to the records of the Revenue Department, there are 16583 revenue villages (Government of Uttaranchal, 2003).

The state is strategically located and forms part of the northern boundary of the country sharing its borders with Nepal and China. It extends between 77*34' and 81*02' E longitude and between 28*43 to 31*27' N latitude and is spread over 53,119 sq. Km. of land, which accounts for 1.67 per cent of India's total geographical area and forms part of central Himalayas. The topography of the state is mostly mountainous as nearly 88 per cent of its geographical area is hilly. The elevation extends from approximately 300 to 7000 meters above sea level—the highest peak is Nanda Devi (7817 meter) in Chamoli district of the state.

It is well known that the idea of a separate hill state was first mooted by the veteran leader, P.C. Joshi of Communist Party of India (CPI) in 1952, and was only feebly and intermittently revived in the following decades. The persistent underdevelopment and neglect of the region in a large state like Uttar Pradesh was the main plank of those who demanded a separate statehood for the region. The demand in fact turned into mass movement during 1994-96

following the attempt of the then Samajwadi Party government in Uttar Pradesh to implement a quota of 27 per cent reservation in government jobs and educational institutions for the OBCs in this region, where they constitute 2 per cent of the population. The historic protest of students at Pauri district headquarters in August 1994 led to widespread agitations in the entire hill region of Uttar Pradesh, which also witnessed killing of some agitationists in Pauri, Mussorie and Khatima towns. The preponderance of students and young people in the movement that followed is explained by their fear that if hills were not granted separate statehood they would be inundated with 'outsiders' from the plains, leading to a further reduction of even such dismal educational and employment opportunities as were available. Thus, the new state represents the aspirations of its people to usher in all round socio-economic development, the fulfillment of which, of course, is a challenging task before the politicians and policy planners.

This Chapter analyses the trends in growth and structure of the economy of Uttaranchal.

II. DOMESTIC PRODUCT

Income estimates at the national and state level are being prepared for a fairly long time in India. These estimates are yet to be made available for Uttaranchal as the state has recently came into existence. However, here we have used the estimates of district domestic product for Uttaranchal from Uttar Pradesh Human Development Report (UPHDR), 2002, which have been prepared for the first time for Uttar Pradesh. Though the Directorate of Economics and Statistics of the State Planning Institute in Uttar Pradesh provides year-wise estimates of net income from commodity producing sectors at the district level, these exclude the income from the services sector. The estimates of the district domestic product have their own limitations (see for details, UPHDR, 2002), but at the same time provide some broad indications of progress made in the state. These estimates have also been used in the Tenth Five Year Plan Document of Government of Uttaranchal, 2002.

1. Growth in Net District Domestic Product

According to these estimates, the real value of net district domestic product (NDDP) increased from Rs. 10015 million in 1980-81 to 14136 million in 1996-97, showing a compound annual growth rate of 2.18 per cent. The tertiary sector has witnessed the fastest growth of about five per cent in the state, whereas the NDDP in primary sector declined in absolute terms from Rs. 5213 million in 1980-81 to Rs. 4645 million in 1996-97, showing a compound annual decline of –0.72 per cent. The secondary sector also witnessed a growth of about 3 per cent per annum (Table 2.1).

Table 2.1
Sector-wise Net District Domestic Product in Uttaranchal (At 1980-81 Prices)

(Rs. million)

Sector	1980-81	% share	1996-97	% share	CAGR (1981-97)
Primary	5213	52.05	4645	32.86	-0.72
Secondary	1682	16.79	2705	19.14	3.02
Tertiary	3121	31.16	6786	48.00	4.98
All	10016	100.00	14136	100.00	2.18

Source: UPHDR (2002).

The highest rate of growth of NDDP has been recorded at above four per cent in Dehradun. This is mainly attributed to a high growth of above six per cent in its tertiary sector. At the other extreme, the NDDP declined in absolute terms in Chamoli and the annual decline has been more than 2 per cent during the period, 1980-81 to 1996-97. The growth of NDDP in both the primary and secondary sectors in the district has been negative, but more so in the primary sector (more than -5 per cent per annum). The district also witnessed the lowest annual growth in its tertiary sector at about 2.4 per cent.

In the case of the primary sector, four districts, namely, Chamoli, Garhwal, Nainital and Almora, registered a negative growth. The absolute decline in the share of the primary sector in NDDP in Nainital is surprising since it has a large area (now shifted to Udham Singh Nagar), which has a highly developed agriculture. The remaining districts experienced a growth rate of even below one per cent per annum in their primary sector (Table 2.2).

Since all the major industries in the state are located in the plain belt of Nainital (now shifted to Udham Singh Nagar), the district registered a highest growth rate of 7.2 per cent in NDDP in the secondary sector during the period, 1980-81 to 1996-97. Other districts, namely Dehradun and Pithoragarh witnessed a growth of above three per cent in their secondary sector, whereas there was an absolute decline in Tehri Garhwal and Uttarkashi. Thus, it is the NDDP in the service sector, which witnessed positive growth in all the districts, ranging between 2.4 per cent in Chamoli to 6.1 per cent in Dehradun. However, in all the mountain districts except Tehri Garhwal, the growth in the service sector NDDP has been less than the state's average (Table 2.2).

Table 2.2
Sector-wise Annual Compound Growth Rate of NDDP during 1980-81 to 1996-97 (At 1980-81 Prices)

(Per cent)

District	Primary	Secondary	Tertiary	All
Almora	-0.36	0.53	3.71	1.33
Chamoli	-5.17	-3.17	2.41	-2.13
Dehradun	0.19	3.50	6.12	4.08
Garhwal	-0.87	1.00	4.45	1.82
Nainital	-0.75	7.16	5.72	2.77
Pithoragarh	0.74	3.03	4.09	2.23
Tehri Garhwal	0.24	-0.14	5.32	1.90
Uttarkashi	0.44	-0.61	3.70	1.40
Uttaranchal	-0.72	3.02	4.98	2.18

Source: UPHDR (2002).

It needs to be mentioned here that the growth in services sector NDDP is mainly linked with the size of employment in government departments, which expanded at a rapid pace during the 1980s in almost every district in the state. The growth in trade and transport activities, particularly during the 1990s in the state also helped in boosting the growth of both NDDP and employment in the services sector. The growth of NDDP has accelerated in the 1990s in the state (Table 2.3). Except Uttarkashi all the districts witnessed accelerated growth. The growth in NDDP has been more than 5 per cent in the districts of Hardwar, Dehradun, Garhwal and Pithoragarh.

Table 2.3
Growth of NDDP during 1993-94 to 1997-98 (At 1993-94 Prices)

(Rs. million)

District	1993-94	1997-98	CAGR
Almora	5382	6030	2.89
Chamoli	3295	3582	2.10
Dehradun	9519	12033	6.04
Garhwal	4897	6154	5.88
Hardwar	11753	15737	7.57
Nainital	20082	23338	3.83
Pithoragarh	4280	5244	5.21
Tehri Garhwal	3957	4589	3.77
Uttarkashi	3353	3262	-0.69
Uttaranchal	66517	79970	4.71
Uttaranchal excl. Hardwar	54764	64233	4.07

Source: UPHDR (2002).

2. Sectoral Shifts in NDDP

The inter-sectoral differentials in growth rates can be explained in terms of the decline in the share of primary sector in NDDP from 52.1 per cent in 1980-81 to 37.6 per cent in 1997-98 in the state. Correspondingly, the share of services sector has increased from 31.2 per cent to more than 40 per cent during the period. The share of the secondary sector in NDDP increased marginally from 16.8 per cent in 1980-81 to 22 per cent in 1997-98 (Table 2.4). At the national level, the share of the primary sector decreased from 41.3 per cent in 1980-81 to 30.5 per cent during the year, 1997-98, with that of the service sector recording a corresponding increase during the period. Thus, the share of primary sector in the NDDP in Uttaranchal is comparatively higher than that of India by as much as 7 per cent. Though there is a general tendency of a faster decline in the share of agriculture in NDP as compared to its share in employment, both at the state and national level, the absolute decline (negative growth) in the primary sector in Uttaranchal over the years is a matter for serious concern, as more than two-thirds of the total workforce (67.6 per cent) in the state (NSSO, 2001) is dependent on this sector for their livelihood.

District-wise, the primary sector contributes more than half of NDDP in Uttarkashi (56.4 per cent), and nearly half in Pithoragarh (48.5 per cent) during the year 1997-98. In another three districts, namely, Udham Singh Nagar,

Chamoli and Almora, the share of primary sector ranges between 40 to 45 per cent. The service sector accounts for a predominant share of NDDP in three districts, namely, Dehradun, Garhwal and Hardwar, respectively. The secondary sector accounts for much less than one-fifth of NDDP in all mountain districts except Pithoragarh (Table 2.4).

The highest decline in the share of primary sector in NDDP has been observed in Nainital (17.1 per cent), followed by Chamoli (16.3 per cent), Dehradun (12.8 per cent) and Tehri Garhwal (11.6 per cent) during the period, 1980-81 to 1997-98. On the other hand, while there has been no substantial decline in the share of primary sector in the NDDP in Garhwal and Uttarkashi during the period (Table 2.3), the share of the services sector in NDDP has witnessed a corresponding increase in all districts except Pithoragarh and Uttarkashi by more than 10 per cent points. The share of the secondary sector in Garhwal and Uttarkashi districts declined during the period, 1980-81 to 1997-98.

Table 2.4
District-wise Sectoral Shifts in NDDP, 1980-81 to 1997-98

District	1980-81 (At 1980-81 constant prices)				1997-98 (At 1993-94 constant prices)			
	Primary	Secondary	Tertiary	All	Primary	Secondary	Tertiary	All
Almora	51.01	17.43	31.56	100.00	39.96	18.19	41.95	100.00
Chamoli	61.39	13.74	24.87	100.00	44.54	14.56	40.90	100.00
Dehradun	29.64	26.87	43.49	100.00	16.14	26.28	57.58	100.00
Garhwal	42.75	22.32	34.93	100.00	38.58	18.20	43.22	100.00
Hardwar	-	-	-	-	30.77	33.34	35.88	100.00
Nainital	61.34	10.75	27.9	100.00	46.85	12.36	40.80	100.00
Pithoragarh	57.09	11.54	31.37	100.00	48.52	14.65	36.83	100.00
Tehri Garhwal	48.55	25.24	26.21	100.00	36.92	23.13	39.95	100.00
Udham Singh Nagar	-	-	-	-	45.26	21.06	33.68	100.00
Uttarkashi	57.04	14.87	28.09	100.00	56.38	12.62	31.00	100.00
Uttaranchal exl. Hardwar	52.05	16.79	31.16	100.00	39.26	18.81	41.93	100.00
Uttaranchal	-	-	-	-	37.56	21.97	40.47	100.00
India	41.29	23.00	35.71	100.00	30.49	27.74	46.93	100.00

Source: UPHDR (2002); IAMR (2002).

3. Inter-district Differentials in Per Capita Income

As per the NDDP estimates Uttaranchal is an economically prosperous state. The per capita NDDP (at 1993-94 prices) in the state at Rs. 9971 is higher than the all-India figure of Rs. 9288 during the year, 1997-98. Along with the higher per capita income level in the state, inter-district differentials in it are sharper. Nearly 64 per cent of NDDP in the state originates in four districts, namely, Nainital, Dehradun, Hardwar and Udham Singh Nagar, which account for about 56 per cent population of the state. As is seen in Table 2.5, the per capita NDDP ranges from as high as Rs. 16017 in Nainital to as low as Rs. 6512 in Chamoli in the year, 1997-98. The per capita NDDP in the districts Nainital (including Udham Singh Nagar), Hardwar, Uttarkashi and Dehradun is substantively higher than the state average. The remaining districts, all being mountainous, are characterised by a significantly lower per capita income than the state's average.

The estimates of per capita NDDP in the districts, which account for a significant contribution to the NDDP from forestry and mining, are lower than those in the other districts. In fact, 'income originating' from these two sectors in the districts is accrued to outside the state. Only a small share (10 to 15 per cent) of income from such sectors is retained in the state in the form of wages paid to local workers (Government of Uttaranchal, 2002). A look at the sectoral composition of NDDP shows that both forestry and mining contributed more than one-tenth of the income in the state during the year 1997-98.

The more worrisome feature, however, is the almost stagnant level of real per capita income in Uttaranchal, which increased negligibly by less than 0.1 per cent during the period, 1980-81 to 1996-97. In contrast, per capita NDP in India increased by nearly 3.5 per cent during this period. In the districts of Chamoli, Uttarkashi and Nainital, the per capita NDDP declined in absolute terms, the decline being sharper in Chamoli—the annual compound decline being more than 4 per cent. The highest growth in per capita NDDP (about one per cent) is seen only in two districts, namely, Dehradun and Garhwal (Table 2.5).

The persistence of almost stagnant levels of per capita income over a period of more than one and half decade is a matter of serious policy concern. Clearly, the state cannot afford this alarming situation and, therefore, needs to take strong policy initiatives aimed at accelerating the growth in the per capita income of its population.

It is noteworthy that the growth of NDDP in the state accelerated in the 1990s—having almost doubled to 4.7 per cent during the period, 1993-94 to 1997-98, as compared to the earlier period, i.e. 1980-81 to 1996-97. The per capita income of the state also increased by 2.8 per cent per annum during the period (Table 2.5), which saw an increase in all the districts except Uttarkashi and Chamoli.

Table 2.5

District-wise Per Capita NDDP (in Rs.)

District	At 1981-81 prices			At 1993-94 prices		
	1980-81	1996-97	CAGR 1981-1997	1993-94	1997-98	CAGR 1994-98
Almora	1575	1650	0.29	6336	6959	2.01
Chamoli	2941	1478	-4.21	6678	6512	-0.63
Dehradun	1962	2305	1.01	8685	10052	3.72
Garhwal	1530	1803	1.03	7130	8886	5.66
Hardwar	-	-	-	9696	11746	4.91
Nainital	2825	2670	-0.35	12060	12632	1.16
Pithoragarh	1766	1985	0.73	7132	8091	3.2
Tehri Garhwal	1626	1713	0.32	6737	7685	3.35
Uttarkashi	2703	2338	-0.9	13153	11790	-2.7
Uttaranchal excld. Hardwar	2094	2117	0.07	8776	9616	2.31
Uttaranchal	-	-	-	8926	9971	2.81
CV	34.69	51.73		35.52	43.89	
All-India	1615	2761	3.41	7698	9288	4.81

Note: 1. Nainital includes Udham Singh Nagar. Per capita income in 1997-98 for Nainital and Udham Singh Nagar being Rs. 16017 and Rs. 10596, respectively. Figures for Rudrapryag, Champawat and Bageshwar are not available separately and are included in their respective parent districts.

2. Per capita NDDP derived here differs as reported in UPHDR (2000) and IDFC (2002). Here the figures have been derived by interpolating population during the decade 1991-2001.

Source: UPHDR (2002); for India, CSO, *National Accounts Statistics,* Various Issues

The fastest growing districts are Garhwal, Hardwar, Pithoragarh, Dehradun and Tehri Garhwal, which recorded a higher per capita growth rate than the average during the period. The large difference between the annual growth rate of NDDP and per capita NDDP in Dehradun and Nainital indicates the higher growth of population[1] in these districts as compared to the growth in their NDDP. On the other hand, districts, viz, Garhwal and Tehri Garhwal witnessed the lowest growth of even less than 0.5 per cent in their population while retaining a high growth in their NDDP. Overall, the inter-district disparities in per capita NDDP increased in the state over the years as seen in the value of coefficient of variation (Table 2.5).

Though the nineties witnessed an increase in the per capita NDDP in the state, the inter-district disparities widened during the period. The value of coefficient of variation in per capita district income has increased from 34.7 in 1980-81 to 51.7 in 1996-97 indicating a moderate trend towards the increase of inter-district income disparity in the state. The ranking of the districts, however, did not change significantly over the years except that the district of Chamoli, which ranked first in 1980-81, slipped to the bottom in 1997-98, and Garhwal improved its rank from the bottom to 4th place. One fact that remains intriguing relates to large inter-sectoral differences in per capita NDDP. More than two-thirds of the state's workforce engaged in agriculture is contributing to nearly 38 per cent of the NDDP, which only shows the abysmally low levels of earnings of a majority of the workforce. Such inequity have increased over the years, more so in the mountain districts, and thus should be seriously addressed through policy initiatives aimed at enhancing the productivity of the farm sector. The Draft Tenth Five Year Plan Document of the state (the first ever of the state) specifically underscores the need to diversify agriculture so as to gradually replace the subsistence farming patterns in the mountain areas with the cultivation of high-yielding alternate crops (Government of Uttaranchal, 2002).

[1] These are the districts where growth of population is attributed to in-migration.

III. POVERTY

Planning Commission provides state-wise estimates of the percentage of population living below poverty line based on consumption expenditure data of National Sample Survey Organisation (NSSO). The head-count ratios (HCR) of poverty are also estimated for the NSS Regions in the country. The 'Hill Region' of Uttar Pradesh (now in Uttaranchal) is also one among the 77 NSS Regions in the country. According to these estimates, 15.6 per cent of rural population in Uttaranchal is living below poverty line during the year 1999-2000[2] (Dubey, et al., 2002). The corresponding figure for India is much higher at 27.1 per cent.

Apart from NSSO, Central Ministry of Rural Development periodically conducts the census of below poverty line (BPL) households in rural areas of the country through block development offices. The BPL census is an important tool for distributing funds for rural development schemes across the country. Over the years, there has been methodological refinements in the methodology of the BPL census. Unlike the earlier BPL censuses, BPL census in 1997 adopted for the first time the 'expenditure criteria' for determining the number of rural poor. [3] Table 2.6 provides district-wise number of rural households living below poverty line for the year 1997.

The table shows that 36.4 per cent of rural households in Uttaranchal are living below poverty line. District-wise figures show that the highest percentage of poor households is in Uttarkashi (68.5 per cent), followed by Tehri Garhwal (56.5 per cent), Chamoli (51.7 per cent) and Bageshwar (41.6 per cent). The lowest percentage of BPL households is in Hardwar district (17.6 per cent). The pattern of rural poverty across the districts also broadly corroborates with the pattern observed in the case of per capita income (as seen in Table 2.5) except in the case of Uttarkashi.

[2] Hardwar district (now in Uttaranchal) belongs to Western Region of NSS in Uttar Pradesh. By including this district, the poverty ratio for Uttaranchal state turns to be 17.1 per cent during the year 1999-2000.

[3] The results of the latest BPL census for the year 2002 are yet to be available.

Table 2.6
District-wise Percentage Share of Poor among Rural Households

District	Total number of rural households	No. of households living below poverty line	Percentage of BPL households
Almora	113857	41650	36.58
Bageshwar	37694	15692	41.63
Chamoli	57368	29651	51.69
Champawat	29468	10977	37.25
Dehradun	95881	30890	34.22
Hardwar	128171	22528	17.58
Nainital	65539	19989	30.50
Pauri Garhwal	120941	32342	26.74
Pithorgarh	80847	24912	30.81
Rudraprayag	42541	15896	37.37
Tehri Garhwal	104424	59028	56.53
Udham Singh Nagar	107457	39413	36.68
Uttarkashi	48949	33534	68.51
Total	1033137	376502	36.44

Source: Http://ua.nic.in/rural/bpl-table.htm

It needs to be mentioned here that commonly applied statistical indicators of poverty do not always reflect poverty or its absence in mountain areas (Papola, 2002), Mountain conditions, terrain, and climate make it absolutely necessary that people have a higher minimum energy and caloric intake, in their food, for survival than in the plains and that they have minimum clothing including warm clothing and permanent shelter, to protect themselves from the tenacities of weather and climate. Poverty ratios based on common consumption norms for calculating 'poverty line' are likely to indicate that many people who are not able to meet their basic survival needs according to local conditions are non-poor and thus the incidence of poverty is shown to be lower in mountain areas than even in relatively better-off regions in the plains. Thus, the incidence of poverty measured as the proportion of the population living below the poverty line based on consumption norms was estimated to be much lower (17.1 per cent) in Uttaranchal than the prosperous Western NSS Region of Uttar Pradesh (21.9 per cent) in 1999-2000. Similarly, in 1999-2000 poverty ratios are estimated to be lower in Jammu & Kashmir (3.48 per cent), Himachal Pradesh (7.63 per cent) than Haryana (8.74 per cent); and even much lower than for India (26.1 per cent) (Planning Commission, 2002). If a poverty line taking into account (i) higher

energy/calorie intake; (ii) greater non-food needs for clothing and shelter for survival; and (iii) higher prices prevalent in mountain areas is adopted, the incidence of poverty, in terms of population suffering from the inability to meet basic needs, would be much higher (Papola, 2002).

A more important feature of the consumption levels in mountain areas is that they are not always met by local income generation but by remittances upto a significant extent, thus making their sustainability rather precarious. Studies suggests that an average of about 35 per cent of the consumption needs of mountain households are met through remittances (Khanka, 1988; Bora, 1996). Income estimates, as they are made, measure the income originating and not income accruing and, in the case of mountain areas like Uttaranchal, the latter happens to be much smaller than the former due to the extractive nature of several important income-generating activities (e.g. forests, tourism, hydroelectricity, minerals) from which income is produced in the region, but most of it flows elsewhere. Of the income from forests, for example, local retention is estimated to be only around 10-15 per cent. Per capita domestic product was estimated to be about 25 per cent higher, for example, in the case of Himachal Pradesh and Uttaranchal than the national average of India, but these estimates go down by about one-third, once income retained in the respective states only is consolidated (Papola and Joshi, 1985; Papola, 2000).

IV. AGRICULTURE DEVELOPMENT

After analyzing the features of income and poverty it will be appropriate to analyse the base for the appropriation of income, particularly agriculture in the state with a focus on mountain districts.

1. Land Use Pattern

It is often said that mountain areas are rich in resources. The fact, however, is that usable resources are extremely limited. The amount of land available for cultivation in Uttaranchal, particularly in the hilly districts is very limited as it constitutes only 12.4 per cent of the total reported area in the year 1996-97 (Table 2.7). Also, there has not been any perceptible change in the pattern of

land use during the last two decades—as much as 64 per cent of total reported area is under forests.

A significant variation is witnessed in the pattern of land utilisation in the state. Among the mountain districts, Uttarkashi has the lowest percentage of net sown area (3.7 per cent) and Almora the highest (15.2 per cent), while Hardwar and Udham Singh Nagar have the highest percentage of net sown area (about 53 per cent) as a whole in the state. The area under forests ranges between 89 per cent in Uttarkashi to 30 per cent in Hardwar (Table 2.7).

Table 2.7
District-wise Land Use Pattern, 1996-97

District	Area(000 hect.)	Forest (%)	Net cultivated area (%)	% Net irrigated area in net cultivated area
Almora	496.86	61.21	14.09	10.59
Bageshwar	229.96	38.24	17.51	8.67
Chamoli	883.89	63.76	4.97	5.76
Champawat	176.75	65.18	9.84	10.19
Dehradun	303.21	68.50	17.73	44.57
Garhwal	753.29	59.06	11.61	9.14
Hardwar	233.51	30.35	53.02	81.81
Nainital	411.72	73.05	12.22	60.21
Pithoragarh	460.84	46.77	10.87	9.34
Rudrapryag*				
Tehri Garhwal	536.55	66.95	12.50	13.83
Udham Singh Nagar	291.73	35.50	52.35	92.87
Uttarkashi	817.63	88.83	3.74	17.14
Uttaranchal exl. Hardwar	5362.43	63.94	12.37	35.94
Uttaranchal	5595.94	62.54	14.07	43.16

Note: * Included in Chamoli district.

Source: Government of Uttaranchal, *Sankhayaki Patrika, 2001* (Hindi), Dehradun.

The basic implication of such a land use pattern is quite clear: the availability of per person agricultural land is quite low in the state—0.09 hectare as compared to 0.17 hectare in India during the year 2000. This has decreased over the years with the growing population from 0.15 hectare and 0.21 hectare in 1981 for Uttaranchal and India respectively[4]. This, in turn, imposes severe limitations on the ability of the state, particularly the mountainous region, to meet

[4] Calculated from the Land Use Statistics of Ministry of Agriculture, Government of India.

its food needs. As a result all the mountain districts except Nainital are food deficient (IDFC, 2002). Since nearly 1.3 per cent of the cultivable land in the state is fallow and more than 5.9 per cent is cultivable barren land, this could be brought under the net sown area over a period of time. This could lead an addition to the present land under cultivation by nearly 50 per cent.

About 44 per cent of net cultivated area in the state is irrigated. In plain districts, namely, Udham Singh Nagar and Hardwar as high as 95 per cent and 82 per cent of the net cultivated area is irrigated, respectively. At the other extreme, in the mountainous districts, the percentage of irrigated area ranges as low as 4 per cent in Champawat to 23 per cent in Bageshwar (Table 2.7). The irrigated area in these districts increased by only about 7 percentage points during the period 1980-81 to 1996-97—in fact due to falling investment in the agricultural sector, the 1990s hardly witnessed any increase in the irrigated area. Furthermore, because of the undulating topography and hard rocky strata, it has been difficult to provide irrigation facilities to a larger proportion of cultivable land. Lack of irrigation, in turn, also hinders the use of improved agricultural practices entailing the use of fertilizers and pesticides and improved varieties of seeds, resulting in the abysmally low agricultural productivity in mountain districts. This is discussed in sub-section 4.

It merits mention here that augmenting water resources bring additional land under irrigation in the state has become difficult in view of increasing deforestation underway, which has adversely effected the water yields. Valdia (1996) finds that the springs have either ceased to yield water or their discharge is minimal—particularly in the seasons other than the monsoon when a little less than 50 per cent springs discharge water ranging from 25 per cent to 75 per cent. This has resulted in a considerable decrease in water flow, estimated to be around 30 per cent to 40 per cent in the last decade or two.

2. Land Holdings

More than 70 per cent of landholdings in Uttaranchal are marginal (less than one hectare), which account for only 27 per cent of total area under the operational holdings, while nearly half the operational holdings are sub-marginal (below 0.5 hectare) and represent about 11.4 per cent of the total area under the operational holdings in the state (Table 2.8). Another 25 per cent land holdings are between 1-4 hectares, covering about half the area under operational holdings. The degree of marginality of land holdings has further increased, though slightly, during the period, 1981-96.

A caste-wise analysis of the operational holdings indicates that about 12 per cent of the holdings in the hilly districts of Uttaranchal are cultivated by Scheduled Castes and 3.7 per cent by Schedule Tribes—the percentage having declined from 14.6 per cent and 3.4 per cent, respectively in 1981 (Table 2.9). The area under operational holdings owned by SCs declined from 7.1 per cent in 1981 to 6.6 per cent in 1991. On the other hand, their share in population increased marginally from 16 per cent to 16.7 per cent, respectively during the period. This also implies that there is a trend towards landlessness, particularly among the SCs.

Table 2.8
Number and Area of Operational Holdings in Uttaranchal by Size-Class (%)

Size class (hect.)	Number			Area (Hectare)		
	1981	1991	1995-96	1981	1991	1995-96
1. 0.25 - 0.50	49.95	49.76	50.11	9.91	12.14	11.36
2. 0.50 - 1.00	19.9	21.43	21.52	14.09	15.93	15.79
3. Marginal (Below 1.00)	69.84	71.19	71.63	24.00	28.08	27.15
4. Small (1 - 2.00)	17.12	16.83	16.48	23.85	24.96	24.89
5. Semi-Medium (2.00 - 4.00)	9.34	9.03	8.79	25.73	25.93	25.60
6. Medium (4.00 - 10.00)	3.35	2.72	2.90	18.95	16.02	17.26
7. Large (10.00 and above)	0.35	0.24	0.20	7.48	5.01	5.10
Total	100.00	100.00	100.00	100.00	100.00	100.00
Total number (in '000)	737.80	754.50	926.58	730.40	711.00	859.32

Note: The years 1981 and 1991 exclude Hardwar.
Source: Joshi et al. (2000); Government of Uttaranchal (2002).

Table 2.9
Operational Land Holdings in Uttaranchal*

	Scheduled Caste		Scheduled Tribe		All	
	1981	1991	1981	1991	1981	1991
1. Percentage share in						
(i) Total operational land holdings	14.61	11.95	03.39	03.24	100.00	100.00
(ii) Total operational area	07.15	06.61	06.15	06.26	100.00	100.00
(iii) Total population	15.97	16.70	03.76	03.54	100.00	100.00
2. Percentage of land holdings						
(i) Marginal	86.00	85.07	53.13	52.91	69.85	71.19
(ii) Small	09.27	10.42	15.34	15.04	17.11	16.83
3. Percentage of area operated						
(i) Marginal	48.89	47.62	09.57	09.69	24.00	28.06
(ii) Small	25.86	27.25	12.18	11.97	23.85	24.96

Note: * Excludes Hardwar.
Source: Calculated from Joshi et al. (2000).

This is also substantiated by the fact that more than 85 per cent land holdings among SCs are marginal, as compared to about 53 per cent and 71 per cent among STs and others respectively. The share of marginal holdings, though high among SCs, declined marginally from 86 per cent in 1981 to 85 per cent in 1991 (Table 2.9). This is contrary to the broad trend marked by an increasing share of marginal holdings. It indicates that many of the marginal farmers among the SC groups in the state are selling their holdings to their fellow small farmers. Also, it seems that land redistribution measures have mostly benefited the small and medium SC farmers.

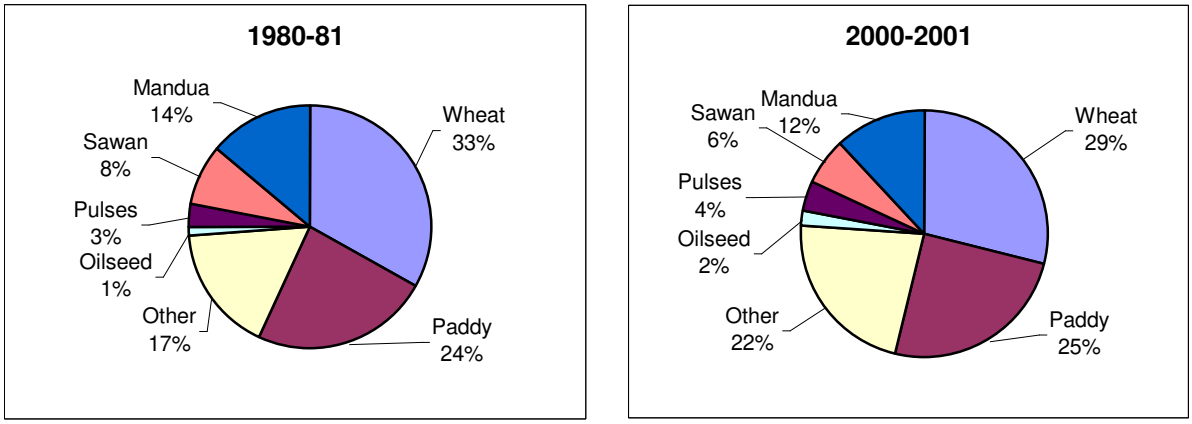
Since a large cultivable area in Uttaranchal is under marginal holdings, which too is fragmented and scattered particularly in the mountain areas, the economies of scale can not be availed of, thus raising the input cost per unit. This has impeded the task of making agriculture a profitable occupation. However, the experience of Himachal Pradesh with a similar land holdings pattern shows that agriculture could be made remunerative through its focussed development by providing incentives like inputs, extension, developing infrastructure, etc. This is also explicitly recognized in the Tenth Plan Document of the state (Government of Uttaranchal, 2003). For achieving economies of scale and production, however, consolidation of land holdings is essential.

Accordingly, what is needed is a concerted people's movement with a persuasive mission aimed at propagating land consolidation involving all villages in the state.

3. Cropping Pattern

The main agricultural crops grown in the mountain districts of the state are paddy, *mandua* (ragi), *sawan* (both are small millets) and pulses in the *kharif* crop season (summer crops), and wheat and barley in the rabi crop (winter crops). Food grains such as paddy, wheat and pulses are mostly grown in valley areas and areas that have irrigation facilities, while the other crops are generally grown in the high terraces where irrigation facilities are not available. Mixed cropping is common in mountain district in the state which helps in maintaining the crop diversity and reduces the risk of environment uncertainty. Total area under cereals, pulses and oilseeds is 1020 thousand hectares in 2000-01, which accounts for 81 per cent of the gross cropped area. Nearly 56 per cent of gross cultivated area is under wheat and paddy. About 18 per cent area is under *mandua* and *sawan*, 3.5 per cent under pulses and 2.3 per cent under oilseeds in the state during the year 2000-01. The remaining 19 per cent area is mainly under fruits and vegetable production, sugarcane and fodder production (Fig. 2.1). There has not been any perceptible change in the cropping pattern in the state over the past two decades except a marginal increase in the area under traditional crops in favour of crops like soybean, fruits and vegetables.

Fig. 2.1
Area Under Different Crops



Source: Government of Uttaranchal (2002 and 2003); Joshi et al. (2000).

4. Production and Productivity

Productivity of agriculture almost remained stagnant in the state over the past one decade except for the marginal increase in the case of wheat as is seen in Table 2.10. The productivity of wheat and rice in the state is much below the national average because of rainfed situations prevalent in the former (Chauhan, 2001).

Table 2.10
Area, Production and Productivity of Different Crops

Crop	1980-81			1990-91			1999-2000		
	Area	Production	Productivity	Area	Production	Productivity	Area	Production	Productivity
Paddy	273.78	440.03	16.07	266.99	537.06	20.12	308.43	614.46	19.92
Mandua	164.71	161.61	9.81	138.999	169.06	12.16	142.82	197.57	13.83
Sawan	91.23	98.13	10.76	74.955	90.05	12.01	78.32	103.50	13.21
Wheat	374.49	506.18	13.52	359.013	592.08	16.49	400.48	809.88	20.22
Pulses	28.84	19.75	6.85	31.113	20.11	6.46	44.14	33.67	7.64
Oilseed	15.76	8.56	5.43	16.035	11.14	6.95	23.37	17.56	7.51

Note: Area in '000 hectares; production in '000 metric tons; productivity in quintals per hectare.
Source: Joshi et al; (2000); Government of Uttaranchal (2001b).

There is a striking difference in the productivity of different crops between the mountain and plain areas of the state (Tables 2.11). It is clear from the Table that both rice and wheat cultivation in the mountain districts is very unproductive. The productivity of rice at 12.42 quintals per hectare is less than half that in the plains at 27.47 quintals per hectare. Notably, the area under rice production which is little more than 1.5 lakh hectares is almost the same both in mountain and plain areas of the state. Similarly, the productivity of wheat in the mountain districts at 12.12 quintals per hectare is much lower as compared to more than 30 quintals per hectare in the plains (also see Fig. 2.2). Surprisingly, nearly, 60 per cent of area under wheat cultivation falls in the mountain districts of the state. Mustard and rabi oilseeds have a higher productivity in the mountain districts compared to that in the plains.

The productivity of peas is the same in both the regions, while that of potato is marginally lower in mountain areas, at 226 quintals, as compared to 239 quintals in the plain areas. However, potato is mainly produced in the mountain

districts as nearly 90 per cent of area under potato production is in the mountain districts.

Table 2.11
Area, Production and Productivity of Different Crops for Hill and Plain Districts, 1999-2000

Crop	Region	Area (ha)	Production (mt)	Productivity (quin/ha)
Rice	Hill	154.69	192.19	12.42
	Plain	153.74	422.28	27.47
	Total	308.43	614.47	19.92
Wheat	Hill	238.34	312.7	12.12
	Plain	162.14	497.18	30.66
	Total	400.48	809.88	20.22
Mandua	Hill	142.18	196.5	13.82
	Plain	0.65	1.08	16.72
	Total	142.83	197.58	13.83
Sawan	Hill	77.95	103.29	13.25
	Plain	0.37	0.21	5.55
	Total	78.32	103.5	13.21
Pulses	Hill	22.42	15.44	6.89
	Plain	7.86	7.25	9.22
	Total	30.28	22.69	7.49
Potato	Hill	13.68	308.88	225.82
	Plain	1.56	37.33	239.29
	Total	15.24	346.21	227.2
Pea	Hill	0.73	1.01	13.83
	Plain	1.9	2.63	13.83
	Total	2.63	3.64	13.83
Rabi oil seeds	Hill	4.45	4.56	10.25
	Plain	8.9	6.88	7.73
	Total	13.35	11.44	8.57
Kharif oil seeds	Hill	5.26	2.7	5.15
	Plain	4.52	3.18	7.04
	Total	9.78	5.89	6.02

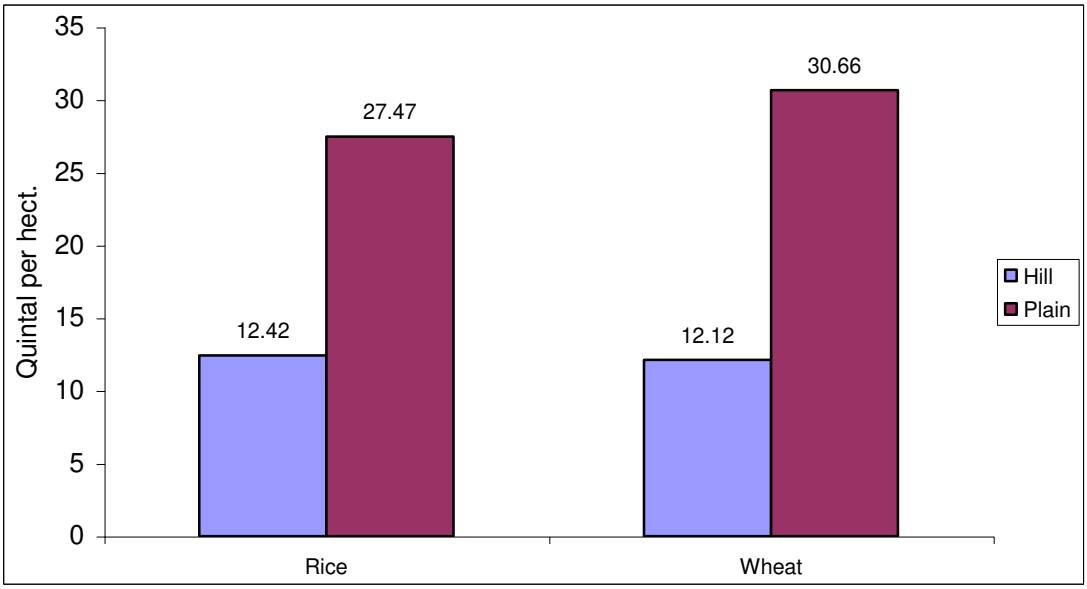
Note: Area in '000 hectares; production in '000 Mtons; productivity quintals per hectare.
Source: Calculated from, Directorate of Agriculture; Government of Uttaranchal (2002)

The reasons for low yields in mountain districts are preponderance of marginal land holdings, which are too fragmented and scattered, relatively infertile land, poor irrigation facilities, difficulties in using modern technology and very limited use of modern inputs, mainly due both to their unsuitability and non-availability in these regions. For example, the application of fertilisers per hectare of gross cultivated area in the mountain districts of Uttaranchal ranged

between 1.6 kg in Champawat to 10.7 kg in Uttarkashi during the year 1998-99, whereas in plain districts it ranged between 57 kg in Dehradun to 281.8 kg in Udham Singh Nagar (Government of Uttaranchal, 2003). Similarly, the percentage of net irrigated area in mountain districts is abysmally low ranging between 4 to 25 per cent.

Fig. 2.2

Per Hectare Productivity of Rice and Wheat



Thus, it is clear that the unproductive traditional cropping pattern in the state, particularly in mountain districts, should be replaced by sustainable cropping patterns, and wherever possible, marketable cash crops should be grown. The cultivation of some of the traditional non-cash crops like wheat and rice should be discontinued in favour of cash crops.

5. Horticulture and Vegetables

The area under commercial crops in Uttaranchal is comparatively low, being about one-fifth of net cropped area as compared to more than 60 per cent of gross cropped area in Uttar Pradesh (Singh, 1997). However, there has been a significant growth in the area under fruits and vegetables in the state, and, in

particular, under the potato crop during the 1990s.[5] The area under vegetables production recorded an annual compound growth of more than five per cent during the period, 1984 to 1996, though it decelerated in the later period, i.e., 1996-2001. As a result, both production and productivity of vegetables recorded an impressive increase during the period. The production of vegetables increased impressively from 141,000 tonnes to 530,000 tonnes during the period, 1986 to 1999-2001 along with accelerated growth in yield. Similarly productivity levels of potato improved significantly in the state (Table 2.12). The production of fruits increased from 352 thousand tones in 1984-86 to 512 thousand tonnes in 1996-2001. Unlike vegetables, the growth in the area under, and the production and productivity of fruits decelerated significantly during 1996-2001.Thus, what emerges clearly is the fact that the average yield of fruits and vegetable crops is comparatively higher than that of the traditional foodgrain crops, which has witnessed an increasing trend over the years (Table 2.12).

Table 2.12
Area, Production and Yield of Fruits and Vegetables in Uttaranchal (in '000)

Crop	Year				CAGR		
	1984-86	1989-91	1994-96	1999-2001	1984-86/ 1989-91	1989-91/ 1994-96	1994-00
A. **Fruits**							
Area (ha)	148.33	169.67	184	190.41	2.27	1.63	0.69
Production (tonne)	351.67	430	500	512.50	3.41	3.06	0.50
Yield (in quintal)	23.69	25.33	27.17	26.92	1.12	1.41	-0.18
B. **Vegetables**							
Area(ha)	36.33	53	68	75.22	6.5	5.11	2.04
Production (tonne)	141.33	259.67	376.33	530.07	10.67	7.7	7.09
Yield (in quintal)	38.87	49	54.7	70.46	3.94	2.23	5.19
C. **Potato**							
Area(ha)	11	13	22	21.47	2.82	11.1	-0.49
Production (tonne)	187.33	238	405.67	460.23	4.07	11.25	2.26
Yield (in quintal)	170.3	183.08	184.39	214.36	1.21	0.14	3.06

Note: Calculated by using triennium averages. The figures exclude Hardwar.
Source: Calculated from Joshi et al. (2000); Government of Uttaranchal (2001b).

[5] The data on crop production are compiled by Directorate of Agriculture and that for fruits and vegetable production by Directorate of Horticulture and Food Processing. These data generally do not add equal to the gross cultivated area. We have therefore analysed data separately for fruits and vegetable production.

6. Animal Husbandry

Agriculture in Uttaranchal is closely interlinked with animal husbandry and forestry to form a production system. Marginal and small farmers are heavily dependent on the livestock sector as it is not only a source of milk and draught power, but its by-products, such as, manure, hides, bones, etc., help in supplementing farm income. These animals, in turn largely depend on forests for their feed. According to Jackson (1983), at least eight cattle units are required to cultivate 0.02 hectare of agricultural land. Over the years, the number of livestock increased marginally from 4578 thousand in 1983 to 4611 thousand in 1998. The population of poultry increased rather more sharply at above four per cent per annum during the period 1988-98. There has been a decline in the growth of population of sheep, which could be attributed to the reduction in grazing lands. Also, the decline in the growth of cattle population is indicative of the declining value of cows for the production of bullocks as draught animals, which renders the maintenance of bullocks for draught purposes rather uneconomical. Increase in buffaloes population is mainly due to their better milch yield as compared to cows. Interestingly, poultry farming is becoming increasingly important as is reflected in the high growth of the population of poultry (Table 2.13).

Table 2.13
Growth of Livestock in Uttaranchal

Livestock category	1988		1993		CAGR
	No.('000)	%age share	No.('000)	%age share	
Cattle	1923	45.40	2112	38.75	1.89
Buffaloes	804	18.98	1047	19.21	5.42
Sheep	355	8.38	359	6.59	0.22
Goats	908	21.44	1098	20.15	3.87
Others	246	5.81	834	15.30	27.66
Total	4236	100.00	5450	100.00	5.17
Poultry	558		845		8.65

Source: Government of Uttaranchal, 2001.

V. INDUSTRIAL DEVELOPMENT

As seen in earlier paragraphs in the present chapter, manufacturing industry contributes nearly 22 per cent of state domestic product in Uttaranchal, which is substantively lower than all-India share of about 28 per cent in NDP. During the year 2000-01, there were total 191 large and medium scale industrial units in the state, employing about 51,000 workers. Industrial sickenss is rampant as more than 36 per cent units are closed which involve 22.7 per cent of industrial employment (Government of Uttaranchal, 2003).

In case of small-scale industries, there are 17534 units employing about 60,000 workers during the year 2000-2001. There are 54,047 artisan units employing 59,127 of workers in the state during the year 2000-01 (Government of Uttaranchal, 2003). The major small-scale industries in Uttaranchal are Khadi, handicrafts, handloom fabrics and food products.

Industrial activity is highly skewed in the state of Uttaranchal. While Nainital and Dehradun ranked among the top 15 industrially developed districts in erstwhile Uttar Pradesh, four districts, namely, Chamoli, Pithoragarh, Uttarkashi and Almora, were among the 15 industrially most backward districts in that state (Singh, 1997). More than half the SSI units are located in three districts, namely, Dehradun, Udham Singh Nagar and Hardwar alone, accounting for about 58 per cent of employment in 2000-2001. Many of the industries which had earlier been established, from time to time, have also languished for various reasons (Government of Uttaranchal, 2002).

With the abysmally low level of industrial development in a majority of the districts—mostly in hill areas—in Uttaranchal, future employment and income opportunities could be seriously jeopardized in the state. Given its comparative advantage in certain areas, the state government needs to initiate rigorous efforts to exploit the same. In this direction, the Draft Tenth Plan Document clearly states, "the vision is to make Uttaranchal an attractive destination for environment friendly industries" (Government of Uttaranchal, 2002). The Uttaranchal Industrial Policy 2001 aims at ensuring rapid, balanced and sustainable industrial development of the state. It lays special emphasis on the

revival and growth of traditional industries and aims to boost new industrial units with a view to ensuring the economic development of remote and mountain areas of the state. It identifies certain focus areas: development of infrastructure, enhanced private sector participation, human resource development, expansion of marketing finalities and above all protection of environment. Under the New Industrial Policy, the State has been provided with a package of fiscal incentives for the industrial development as well as for the generation of employment in the state. The package declares the development of industrial infrastructure, development centers, industrial estates, export processing zones, theme parks (food processing parks, software technology parks, etc.) by the state government to provide the infrastructure and environmental help to the private sector. As there are no institutional mechanisms for the development and financing for the industrial sector, the Draft Tenth Plan proposes to establish a composite industrial infrastructure development, investment and finance corporation to fill up this gap. Both Industrial Policy and the Plan Document envisage establishing close linkages between the technical and industrial training institutes and industries with a view to reducing the mismatch in the labour market through skill development.

VI. CONCLUSION

While the per capita income levels in Uttaranchal are higher than in India they are also marked with large inequities between its mountain and plain districts with the per capita income levels in most of the mountain districts being far below the state average. Even in two mountainous districts viz., Chamoli and Uttarkashi, per capita NDDP declined in absolute terms during the period 1993-94 to 1997-98. The overall growth in per capita income in the state, however, has been nearly half of the national growth during the nineties. The low level of income, mainly in mountain districts, where more than 70 per cent workforce is engaged in agriculture, is mainly attributable to the present slow pace of development. Primary sector contributes nearly 38 per cent of the state domestic

product in Uttaranchal which is yet higher by about 7 percentage points as compared to the national average.

The incidence of poverty is much higher among the households in mountain areas in Uttaranchal, which is generally not reflected in the commonly used consumption norms.

The mountain districts of the state suffer from the scarcity of cultivated land as it constitutes only 12.4 per cent of the reported area. More than 70 per cent land holding are marginal. Alone nearly half the landholdings are sub-marginal (less than 0.5 hectare). Apart from the preponderance of sub-marginal land holdings—that too being scattered sometimes within a radius of 4-5 km.—poor irrigation facilities, near absence of the use of modern farm techniques, inputs and poor infrastructure like road, communication, market, etc., are responsible for the low levels of agricultural development in the mountain districts of the state. As a result per acre yield of rice and wheat—two major crops is much less than half in the mountain region of the state as compared to plain areas. Mountain agriculture is primarily cereal-based as only less than one-fifth of the gross cultivated area is under commercial crops. The low production as well as productivity has forced many of the able-bodied youth to seek their livelihoods elsewhere through out-migration. The traditional low yielding crops farming needs to be replaced at a faster pace by high income generating crops, like fruits and vegetable production in the effort to accelerate the pace of agricultural productivity. Though there has been some growth under fruits and vegetables production, there is a critical need to bring a larger area under these crops. Also diversification of agriculture into medicinal plants, tea, mushrooms, floriculture and ancillary activities like bee-keeping and sericulture has tremendous potential for improving income levels in agriculture. The scarcity of land can be partly augmented by putting fallow and barren land under cultivation, which accounts for nearly one-tenth of the geographical area. Development of such land would require huge public and private investment.

While realising the potential of agriculture in enhancing income levels of its population, the state government has prepared its “Agro-vision” Document

towards developing agriculture, particularly in the mountain districts. However, while looking into the proposed outlays for the Tenth Five Year Plan of the state, the share for agriculture and allied activities is as low as nearly 9 per cent of the total outlays. This share is certainly lower as compared to its previous two annual plans, i.e. 2002-02 and 2002-03, where the share of agriculture in total outlays stood 16 per cent and 15 per cent, respectively.

The New Industrial Policy of the state of Uttaranchal is strongly committed to inject rapid industrial growth in the state, which is expected to create plentiful employment opportunities for its people. However, keeping in view the present level of industrial backwardness of most of the districts, particularly mountainous ones, availability of finances and the severe constraints in setting up large industries, the Industrial Policy would hardly be expected to achieve the desired results unless it is accompanied by a rapid development of the agricultural sector, through its diversification coupled with the judicious use of modern inputs. Agriculture has not only the potential to employ a large number of people but also to provide essential raw materials for the small scale processing industries in the state.

CHAPTER III

POPULATION, LABOUR FORCE AND WORKFORCE

After analysing the macro-economic features of the economy of Uttaranchal in Chapter II, this Chapter attempts to analyse the characteristics of population, labour force and workforce in the state. Based on secondary data the Chapter examines in detail the structural shifts in employment over the past three decades, with a focus on rural employment in the state. It also analyses the educational capabilities of population along with available infrastructure for the same.

I. DEMOGRAPHIC CHARACTERISTICS

1. Population Growth

According to 2001 Population Census, the population of the state is 84.79 lakh comprising of 43.16 lakh males (or 50.9 per cent) and 41.63 lakh females (or 49.1 per cent). Uttaranchal, thus, accounts for 0.82 per cent of the total population of India. The distribution of the population is highly skewed in the state as 46.67 per cent of the total population resides in its three districts viz, Hardwar (14.44 lakh), Dehradun (12.79 lakh) and Udham Singh Nagar (12.35 lakh) which are situated in the plain areas of the state.[1] Thus, nearly 46 per cent of the population of Uttaranchal lives in plains. The implications of such skewed distribution of the population in the state will be discussed later.

The trend in the growth of population in the state shows an uptrend prior to 1981, the year after which the growth decelerated—from an annual growth of 2.2 per cent during 1971-81 to 1.8 per cent during 1991-2001. The growth in population in Uttaranchal has been comparatively at higher edge till 1991, and since then declined at a faster rate than India (Table 3.1).

[1] It may be mentioned that the population of Dehradun district includes that of Chakrata Tehsil, which is mountainous. Chakrata Tehsil, however, accounts for only a small part of the population of the district (11 per cent according to 1991 Census).

The district-wise analysis reveals a wide variation in population growth. Nainital experienced the highest annual increase of 2.88 per cent in its population during the decade1991-2001, followed by Udham Singh Nagar (2.48 per cent), Hardwar (2.36 per cent), Dehradun (2.23 per cent) and Uttarkashi (2.07 per cent). The high growth of population in Nainital could be attributed to the high growth of population in the foothills, especially in Haldwani-Kathgodam area. Thus, the plain districts mainly added to the population of the state. Another noteworthy feature of the demographic trends in the state is the rather low growth (less than 1.0 per cent) of population in Almora, Garhwal and Bageshwar. Both Almora and Garhwal districts witnessed almost a three-fold decline in the annual growth rate of population—from about 0.9 per cent per annum during the decade, 1981-91, to below 0.4 per cent per annum during the decade, 1991-2001. Similarly, in Champawat, the annual growth of population decreased from 2.98 per cent during the decade, 1981-91 to 1.63 per cent during the decade, 1991-2001 (Table 3.1). The decline in growth rates can be attributed to the decline in total fertility rate (TFR), as also to increased out-migration. The estimates of TFR show a declining trend in Uttaranchal from 4 in 1984-91 to 3.2 to 1994-2001 (Ram, 2002). High out-migration, especially of males, from mountain districts could be another reason for further decline in the growth rate of population. This is borne out from the sharp increase in the sex ratio in these districts between 1991 and 2001—from 1058 to 1104 in Garhwal; from 1099 to 1147 in Almora, from 1055 to 1110 in Bageshwar and from 945 to 1024 in Champawat (Table 3.2). This point is elaborated in the following section.

Assuming that the plain districts continue to record a high population growth in future, their population will exceed that of a larger part of the state. This has serious implications as it would necessitate the concentration of developmental activities in them alone, and the neglect of the other districts. As a result the state development pattern will be marked by sharp inequalities.

Table 3.1
Population Growth in Uttaranchal

District	Population, 2001 (in '000)			Growth of population (exponential)					Density per sq. km.	
	Person	Male	Female	1951-61	1961-71	1971-81	1981-91	1991-01	1991	2001
Almora	630.45	293.58	336.87	1.29	1.42	1.48	0.91	0.31	198	205
Bageshwar	249.45	118.2	131.25	1.34	2.19	1.75	1.40	0.88	99	108
Chamoli	369.2	183.03	186.17	1.75	1.63	2.24	2.01	1.28	43	48
Champawat	224.46	110.92	113.55	2.48	4.23	2.28	2.98	1.63	107	126
Dehradun	1279.08	675.55	603.53	1.72	3.01	2.81	3.02	2.23	332	414
Garhwal	696.85	331.14	365.71	1.33	1.37	1.43	0.87	0.38	124	129
Hardwar	1444.21	773.17	671.04	1.67	2.89	2.87	2.53	2.36	485	612
Nainital	762.91	400.34	362.58	5.42	2.83	3.29	2.66	2.88	149	198
Pithoragarh	462.15	227.59	234.56	1.84	1.23	1.53	1.33	1.04	59	65
Rudrapryag	227.46	107.43	120.04	1.26	1.20	2.23	1.63	1.27	106	120
Tehri Garhwal	604.61	294.84	309.77	1.24	1.34	2.23	1.55	1.51	128	148
Udham Singh	1234.55	649.02	585.53	5.75	3.52	4.01	3.75	2.48	332	424
Uttarkashi	294.18	151.6	142.58	1.21	1.87	2.59	2.30	2.07	30	37
Uttaranchal	8479.56	4316.4	4163.16	2.06	2.21	2.46	2.17	1.76	133	159
India	1027015	531277	495738	1.96	2.20	2.22	2.14	1.93	274	324

Source: Registrar General of India (2001), *Census of India, 2001, Provisional Population Totals of Uttaranchal*, Paper 1 of 2001, Series 6, New Delhi.

2. Sex Ratio

The sex ratio in Uttaranchal improved from 936 in 1991 to 964 in 2001. It merits mention that it has been usually quite high in Uttaranchal as compared to all-India average (Table 3.2). This is more pertinent in the mountain districts of Uttaranchal—in 2001 eight districts (all hilly) had highly favourable sex ratio: Almora-1147, Rudraprayag-1117, Bageswar-1110, Garhwal-1104, Tehri Garhwal-1051, Pithoragarh-1031, Champawat-1024 and Chamoli-1017, respectively. In all these districts sex ratio improved during the period 1991-2001. Hardwar and Dehradun, however have registered the lowest sex ratio (868 and 893 respectively) (Table 3.2)—the former has the dubious distinction of being among the top ten districts of the country with the lowest sex ratio.

The higher sex ratio in the mountain districts is largely attributed to high incidence of male out-migration among them. This is indirectly confirmed while looking at the sex ratio in the age-group, 0-6 years which is low by 21 points than the all-India figure of 927 (Table 3.2). It also merits mention here that unlike the increase in sex ratio, the sex ratio of children, age-group 0-6 years, decreased by

43 points in Uttaranchal during 1991-2001 (Table 3.2). The empirical evidence suggests that it may widen with further fertility decline (Ram, 2002). The reasons for such pattern need to be examined, which, of course, is not the focus of our present analysis.

Table 3.2
Sex Ratio in Uttaranchal (Females per 1000 Males)

District	Year						0-6 yrs,	
	1951	1961	1971	1981	1991	2001	1991	2001
Almora	1060	1114	1100	1095	1099	1147	961	926
Bageshwar	1008	1024	1057	1031	1055	1110	946	939
Chamoli	1092	1103	1035	1020	982	1017	968	935
Champawat	956	929	955	947	945	1024	946	939
Dehradun	715	766	770	811	843	893	944	903
Garhwal	1137	1163	1119	1091	1058	1104	984	925
Hardwar	806	796	803	817	846	868	908	852
Nainital	699	715	837	847	881	906	944	908
Pithoragarh	1020	1052	1033	1027	992	1031	964	901
Rudrapryag	1144	1169	1169	1121	1094	1117	924	924
Tehri Garhwal	1122	1196	1179	1081	1048	1051	970	931
Udham Singh Nagar	731	726	774	841	863	902	912	912
Uttarkashi	993	964	899	881	918	941	957	945
Uttaranchal	940	947	940	936	936	964	949	906
India	946	941	930	934	927	933	924	927

Source: Same is in Table 3.1.

3. Rural-Urban Distribution

According to 2001 Population Census, more than three-fourths of population in Uttaranchal lives in rural areas, which is higher than the all-India average. The mountain districts of the state have continued to be predominantly rural in character as 85.7 per cent of their population is in rural areas, as against 61.5 per cent in the plain districts. In hill districts like Rudraprayag and Bageswar even more than 97 per cent of population lives in rural areas. Though, the degree of urbanisation in Uttaranchal is low as compared to the country in 2001, its pace has accelerated over the decades, thereby reducing the gap between the state and India (Table 3.3).

Table 3.3
Percentage of Urban Population in Uttaranchal

District	1971	1981	1991	2001
Almora	5.21	6.28	6.45	8.56
Bageshwar*				3.13
Chamoli	4.17	8.01	9.01	13.43
Champawat*				14.58
Dehradun	47.08	48.86	50.19	52.94
Garhwal	6.30	9.82	11.86	12.95
Hardwar			30.96	30.86
Nainital	22.13	27.49	32.66	35.36
Pithoragarh	3.80	5.52	7.42	12.14
Rudraprayag*				1.20
Tehri Garhwal	2.65	4.13	5.68	9.67
Udham Singh Nagar*				32.65
Uttarkashi	4.07	6.95	7.08	7.79
Uttaranchal			23.17	25.59
Uttaranchal exl. Hardwar	14.69	18.30	21.70	24.51
India	19.91	23.31	25.72	27.78

Note: *The districts of Rudraprayag, Bageshwar, Champawat and Udham Singh Nagar have been carved out from the districts of Chamoli, Almora, Pithoragarh and Nainital, respectively. Hence, the figures for urban population are included in the respective parent district.

Source: Same as in Table 3.1.

4. Literacy Levels

The literacy level of the population is one of the important indicators of human development. Uttaranchal has achieved commendable success in attaining higher level of literacy in comparison to many regions of the country. The percentage of the literate population in the state increased four-folds—from 18.9 per cent in 1951 to 72.3 per cent in 2001. But, a major improvement in literacy rate was witnessed only after the onset of 1980s, particularly in the case of females. The level of literacy of females in the state increased sharply from just 25 per cent in 1981 (as against 29.8 per cent in India) to as much as 60.3 per cent in 2001 (as against 54 per cent in India) (Table 3.4). Thus, from 5 per cent lower than in India in 1981, it rose markedly over the years to a level that exceeded the all-India figure by 6 per cent. As a result, in respect of literacy level, Uttaranchal is now at par with the educationally developed states like Tamil Nadu, Maharasthra, and Himachal Pradesh. However, it has yet to attain the feat

of Kerala—the highest literate state in India. The state government aims to achieve hundred per cent literacy among the population in the age group, 6 to 14 years by 2003 (Government of Uttaranchal, 2002).

Table 3.4
Literacy Rate in Uttaranchal and India, 1951-2001

Year	Uttaranchal			India		
	Person	Male	Female	Person	Male	Female
1951	18.93	32.15	4.78	16.70	24.90	7.90
1961	18.05	28.17	7.33	24.00	34.40	12.90
1971	33.26	46.95	18.61	29.40	39.40	18.70
1981	46.06	62.35	25.00	43.56	56.37	29.75
1991	57.75	72.79	41.63	52.21	64.13	39.29
2001	72.28	84.01	60.26	65.38	75.85	54.16

Note: Literacy rate of 1951, 1961 and 1971 relate to population aged five years and above, whereas that for 1981,1991 and 2001 relate to the population aged seven years and above.

Source: Census of India 2001, *Provisional Population Totals, Uttaranchal;* Paper 1 of 2001, Series 6; IAMR, *Manpower Profile India: Year Book*, Various Issues.

While the state could achieve a reasonably high level of literacy, there exists remarkable inter-district disparities in the literacy levels. Nainital, with a 79.6 per cent literate population, records the highest level of literacy in the state, whereas Hardwar, with 64.5 per cent of literate population, remains at the bottom. Other districts with a lower literacy rate than the state average are: Uttarkashi (66.6 per cent), Udham Singh Nagar (65.8 per cent) and Tehri Garhwal (67.0 per cent). Gender-wise, Garhwal district has the highest literacy rate among males (91.5 per cent), followed by Rudraprayag, Pithoragarh and Almora—where over 90 per cent males are literate. In the case of female literacy, Dehradun has the highest percentage of literate females (71.2) followed by Nainital (71), whereas it is less than 50 per cent in Tehri Garhwal (49.8 per cent) and Uttarkashi (47.5 per cent). It is, however, important to note that the two districts of Uttarkashi and Tehri Garhwal witnessed the highest improvement in their female literacy (by more than 23 per cent points) during the period, 1991-2001. Other districts, which recorded more than 20 per cent point increase in female literacy are: Chamoli (23.4), Bageshwar (23.2), Rudraprayag (22.9), Champawat (22.1), Pithoragarh (20.7) and Almora (20.1). Table 3.5 clearly

shows that the spread of female literacy, particularly in the mountain districts of Uttaranchal, has been faster in comparison to the other three plain districts of the state as also many other states in India.

Table 3.5
District-wise Literacy Rates in Uttaranchal (Aged 7 Years and above)

District	Person		Male		Female		Gender gap	
	1991	2001	1991	2001	1991	2001	1991	2001
Almora	59.83	74.53	80.78	90.15	41.32	61.43	39.46	28.72
Bageshwar	54.54	71.94	76.52	88.56	34.22	57.45	42.30	31.11
Chamoli	60.40	76.23	80.85	89.89	39.66	63.00	41.19	26.89
Champawat	55.81	71.11	77.63	88.13	32.62	54.75	45.01	33.38
Dehradun	69.50	78.96	77.95	85.87	59.26	71.22	18.69	14.65
Garhwal	65.53	77.99	82.57	91.47	49.65	66.14	32.92	25.33
Hardwar	47.97	64.60	59.28	75.06	34.37	52.60	24.91	22.46
Nainital	68.36	79.60	80.42	87.39	54.51	70.98	25.91	16.41
Pithoragarh	61.38	76.48	80.31	90.57	42.41	63.14	37.90	27.43
Rudrapryag	57.47	74.23	80.36	90.73	37.08	59.98	43.28	30.75
Tehri Garhwal	48.46	67.04	72.09	85.62	26.31	49.76	45.78	35.86
Udham Singh Nagar	49.29	65.76	60.47	76.20	36.02	54.16	24.45	22.04
Uttarkashi	47.23	66.58	68.74	84.52	23.57	47.48	45.17	37.04
Uttaranchal	57.75	72.28	72.79	84.01	41.63	60.26	31.16	23.75
India	52.21	65.2	64.13	75.64	39.29	54.03	24.84	21.61
Coefficient of variation	8.95	7.13	7.03	6.10	12.53	8.61	-	-

Source: Same as in Table 3.1

A worrisome feature of the literacy scenario in Uttaranchal is the large gender gap in the literacy rates. As against this gap of about 24 percentage points between the literacy rates of males and females in the state, it varies widely in individual districts, ranging from a low of 15 and 16 percentage points in Dehradun and Nainital, respectively to a high of 36 and 37 percentage points in Tehri Garhwal and Uttarkashi, respectively. The gender gap, however, decreased by more than 10 percentage points in all mountain districts except Garhwal, Uttarkashi, Tehri Garhwal and Nainital during the period, 1991-2001. The value of co-efficient of variation also reveals the decline in the inter-district disparity in literacy rate in the state during this period and more so in the case of females (Table 3.5).

Region-wise, literacy rate for urban Uttaranchal is 82.4 per cent and that for rural areas in the state is 70.9 per cent. The rural-urban difference in literacy rate in the state is more pronounced in the case of females, with three-fourths (per cent) among them in urban areas being literate, as against 57.4 per cent in rural areas. Further, rural-urban differences in literacy rates are sharper in India as compared to Uttaranchal (Annexure 3.1). And what is particularly significant is the fact that in respect of males, rural-urban differences, in the state have almost disappeared, whereas they persist in the case of India—the difference being less than 5 percentage points in Uttaranchal and more than 15 percentage points in India.

II. LABOUR FORCE AND WORKFORCE

1. Concept in Census and NSS

Population Census[2] defines work as participation in any economically productive activity. Such participation may be physical or mental in nature. It includes effective supervision and direction of work as also unpaid work on farm or in family enterprise. The reference period is one year preceding the date of enumeration.

Census classifies workers into two categories:

(i) Main workers, i.e. those who had worked in some economic activity for the major part of the year, i.e., for a period of six months (183 days) or more; and

(ii) Marginal workers, i.e. those who had worked for less than six months during last year.

The NSSO, which also conducts quinquennial surveys on employment and unemployment, defines work or gainful activity as any activity pursued for pay, profit or family gain or, in other words an activity, which adds value to the national product. Like the Census it includes work in any market activity or non-market activity relating to the agricultural sector.

[2] Conducted every ten years collects information on economic activity of the people.

The NSSO has adopted three different approaches to measure employment and unemployment. These are:

(i) Usual Status (US), which has a reference period of 365 days preceding the date of survey

(ii) Current Weekly Status (CWS), which has a reference period of seven days preceding the date of survey

(iii) Current Daily Status (CDS), in which each day of the seven days preceding the date of survey is taken into account, and the work is measured in persondays.

NSS concept of employment based on usual status approach is broadly comparable with the Census. The NSS workers are further classified as 'principal status workers' and 'subsidiary status workers' depending on duration of their involvement in economic activity for a longer part of the year or not.

It is important to mention here that while male work participation rate as estimated by NSSO is roughly comparable with that of Census, the former reports much higher work participation for females with its better coverage of female work.

Labour force comprises of both the employed and those seeking and/or available for work, i.e. unemployed. It also reflects the participation of population in the labour market. Population Census does not provide direct information on labour force, whereas NSS does so according to its US, CWS and CDS approaches.

The following sections analyse the features of labour force and workforce in Uttaranchal. It needs to be mentioned here that the NSS figures for Uttaranchal relate to the erstwhile 'Hill Region' of NSSO in Uttar Pradesh, which does not include Hardwar.

2. Labour Force

Labour force participation rates (LFPRs) are given in Table 3.6. Three important features are noteworthy here. First, overall LFPR in Uttaranchal is almost equal to that in India, though it is marginally higher in rural areas of the state during the year 1999-2000. Second, female LFPR is very high in Uttaranchal as compared to the national average, whereas that for males is significantly low in the state. This pattern has been consistent over the past four quinquinias. These differences are more pronounced in rural areas. Third, LFPRs tended to decline both in Uttaranchal and India, but there has been a significant decline in LFPR in the former—by about 10 percentage points during the 1990s. This has been true for both the sexes, yet more so for females. The decline in LFPR has been attributed to the following four reasons: (a) a sharp increase in school enrolment, particularly among girls in Uttaranchal, which is explained later in this chapter; (b) lack of employment opportunities in the state as compared to the country as a whole; (c) accelerated pace of male-specific out-migration as reflected in the increase in sex ratio in many mountain districts; and (d) withdrawal of females from the labour force as remittances start flowing in.[3] This is discussed in detail in Chapter VI.

Table 3.6
Labour Force Participation Rate in Uttaranchal and India (Usual Status)

Year	Uttaranchal			India		
	Person	Male	Female	Person	Male	Female
Rural						
1983	52.40	51.64	53.17	45.20	55.50	34.20
1987-88	52.19	53.97	50.57	44.30	54.90	33.10
1993-94	53.23	51.77	54.62	44.90	56.13	33.10
1999-2000	43.48	45.44	41.69	42.30	54.02	30.24
Total						
1983	48.78	52.26	45.06	42.96	55.13	29.91
1987-88	46.76	52.52	41.35	42.02	54.50	28.82
1993-94	49.96	50.82	47.19	42.62	55.59	28.75
1999-2000	39.98	45.26	33.89	40.52	54.05	25.84

Source: NSSO, Household Unit Record Data on Employment and Unemployment, Various Rounds.

[3] There is an increasing tendency among the migrant workers to out-migrate permanently along with their wives and children consequent to an improvement in their incomes, thus, leaving behind their old age parents and other household members. The NSS data on employment and unemployment generally do not capture this feature, as a result LFPRs for males are consistently reported lower in such regions with high incidence of out-migration.

3. Work Participation

(i) WPRs Based on NSS Data

The WPRs based on the NSS data on employment and unemployment for the erstwhile 'Hill Region' of Uttar Pradesh (now in Uttaranchal) are presented in Table 3.9. According to the usual principal status (UPS) approach, 31.5 per cent of population constitutes workforce, whereas according to usual status (UPSS) approach 38.6 per cent of population comprised the workforce during 1999-2000. The usual status (UPSS) WPRs of NSS are marginally higher by about 2 per cent points than Census figures (main plus marginal)—the NSS rates being more than 7 per cent points in case of females and less than about 2 per cent points in the case of males. Having made this general observation, certain interesting features of WPR based on NSS data deserve to be mentioned.

The WPR (UPSS) in Uttaranchal at 38.6 per cent is marginally lower than the all-India figure of 39.7 per cent in 1999-2000. However, one distinguishing feature of WPR in Uttaranchal is its substantially low WPR for males and higher that for females as compared to the all-India figures—the difference being 10 per cent points both for males and females in 1999-2000 (Table 3.7). The difference has been more prominent in the case of rural females in Uttaranchal where their WPR is higher than in rural India by 13 percentage points (Fig. 3.1). Interestingly, WPRs for both the sexes are almost equal in rural areas of Uttaranchal according to their usual status. In fact in 1999-2000, the female WPR in the rural areas of Uttaranchal was higher than their male counterparts by about one percentage point at 43.3 per cent. This again clearly shows that female workers are the backbone of the rural economy of Uttaranchal, particularly in the mountain region of the state. Thus, the argument that the improvement in literacy levels of women workers reduces their participation in the workforce does not seem to be valid in the case of women in Uttaranchal as they have not only achieved the higher literacy rate during the past two decades but have also at the same time helped their households through their greater participation in gainful economic activity.

Like-wise the Census pattern, the NSSO quinquennial surveys also show a decreasing pattern in WPR in the state, more so among the females during the

1990s. The WPR of females, according to their UPS decreased sharply from about 40.3 per cent in 1993-94 to 23 per cent in 1999-2000, whereas that for males decreased from 47.1 per cent to 40.8 per cent respectively. According to usual status (US), the WPR among females decreased from 47.2 per cent to 35.6 per cent and that for males from 49.4 per cent to 42.6 per cent during the period. The decline in WPRs has been more pronounced in rural areas of the state (Table 3.7). This is in conformity with the pattern observed in India, except that the decline was more in Uttaranchal.

Fig. 3.1
Work Force Participation Rate (UPSS)—Rural

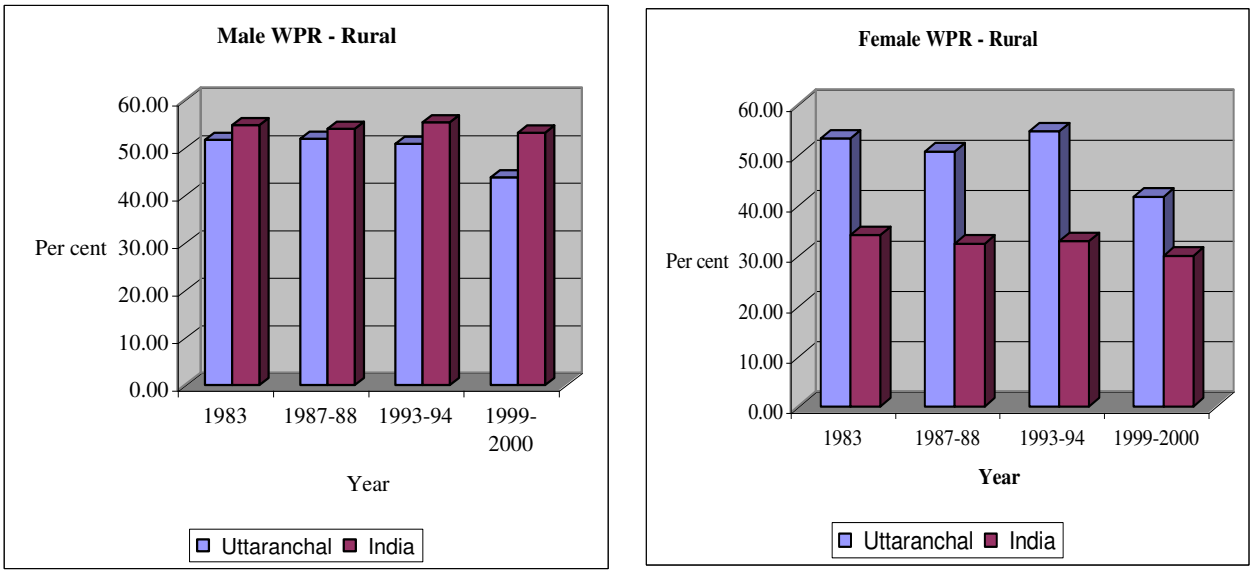


Table 3.7
Work Participation Rate in Uttaranchal and India (UPSS)

Area/Year	Uttaranchal			India		
Rural	Person	Male	Female	Person	Male	Female
1983	52.36	51.56	53.17	44.50	54.70	34.00
1987-88	51.16	51.80	50.57	43.40	53.90	32.30
1993-94	52.72	50.73	54.62	44.40	55.30	32.80
1999-2000	42.61	43.68	41.64	41.70	53.10	29.90
All						
1983	48.49	51.72	45.03	42.00	53.80	21.60
1987-88	45.62	50.17	41.35	41.20	53.10	28.50
1993-94	48.26	49.33	47.19	42.00	54.50	28.60
1999-2000	38.58	43.57	33.75	39.70	52.70	25.90

Source: NSS Household Unit Record Data for 38th, 43rd, 50th and 55th Round.

(ii) Census Based

The work participation rate (WPR) indicates the proportion of population engaged in gainful economic activity. According to 2001 Population Census, the main workers in Uttaranchal constitute 27.4 per cent of the population of the state, which is substantially lower by more than three percentage points than the all-India figure of 30.6 per cent. Sex-wise, 38.1 per cent of male and 16.2 per cent for female population constitutes the main workers in the state. One of the distinguishing features of Uttaranchal is the high WPR among females coupled with low WPR among males as compared to the national average (Table 3.8). The difference in female WPR between Uttaranchal and India has been more pronounced in 1981 and 1991 (see Table 3.8).

The WPR for the main workers declined by nearly eight percentage points in the state during the decade 1991 to 2001, the decline being sharper in the case of males as compared to the females. A similar pattern is also observed for India but the decline was somehow much less (3.2 percentage points). Unlike this pattern, the WPR for both the sexes almost remained unchanged during the decade, 1981 to 1991, both in Uttaranchal and India (Table 3.8). Area-wise, the WPR among males is higher in urban areas (43.5 per cent) as compared to rural areas (35 per cent) in the state. The opposite is true for females. During the decade, 1991-2001, the decline in WPR has been more pronounced in rural areas of the state than the urban areas, and again more so in the case of males.

A look at the combined WPR, i.e. main plus marginal workforce, shows a decline in WPRs in the state during the decade, 1991-2001, but one that is less steep as is observed in the case of main workers during this period. The decline has been only by about three per cent points and is true for both the sexes. This also means that there has been a steep increase in the percentage of marginal workers in population in the 1990s. This is clearly evident from Table 3.8, which shows that the percentage of marginal workers (difference between main and main plus marginal) almost doubled from 4.8 per cent in 1991 to 9.6 per cent in 2001 in the state. Gender-wise, the WPR of male (marginal) workers increased by more than five times (from 1.5 per cent to 8.3 per cent) during the period

1991-2001. The share of female population as marginal workers is still very high as compared to their male counterparts, which also increased by more than 2 percentage points during the decade, 1991-2001 (Table 3.8).

Table 3.8

Work Participation Rate in Uttaranchal and India

Area/Sex	Main			Main plus marginal		
	1981@	1991	2001	1981@	1991	2001
Uttaranchal						
Rural						
Person	37.07	36.8	27.77	42.97	42.81	39.63
Male	46.85	46.65	36.09	48.71	48.48	45.99
Female	27.94	26.74	19.5	37.93	37.06	33.32
Total						
Person	36.19	35.17	27.39	41.13	39.94	36.94
Male	47.69	47.33	38.13	49.24	48.78	46.42
Female	24.21	22.19	16.24	32.7	30.5	27.09
India						
Rural						
Person	34.76	35.36	31.02	38.87	39.99	41.97
Male	52.62	51.27	44.51	53.81	52.48	52.36
Female	16.00	18.40	16.77	23.18	26.67	30.98
Total						
Person	32.56	33.79	30.55	36.70	37.50	39.30
Male	50.25	50.47	45.34	52.60	51.60	51.90
Female	13.63	15.79	14.68	19.70	22.30	25.70

Note: @ Excludes Hardwar district.

Source: 1. Census of India, *Primary Census Abstract*, *Uttar Pradesh,* 1981-1991.

2. Census of India, 2001, *Workers and Non-workers in India,* (Electronic Data).

Thus, the decade of 1990s also witnessed an accelerated pace of marginalisation of the workforce, both in Uttaranchal and India, though the degree of marginalisation has been more pronounced among rural males in Uttaranchal. This is also marked by the low WPRs among males in Uttaranchal than India and increasing difference between the two over the last three decades. This pattern clearly establishes the deteriorating opportunities for stable employment in Uttaranchal and more so in its rural areas. As a result of this precarious situation the already high degree of male-specific out-migration from Uttaranchal seems to have accelerated during the decade, 1991-2001, mainly

from the rural areas of the state. This is reflected to certain extent in the increase in sex ratio and decline in male WPR in the state during 1990s.

The district-wise comparison of WPRs (main workers) reveals a divergent picture. According to 2001 Population Census, female WPRs are much higher in all the mountain districts than the three plain districts—ranging between 15.5 per cent in Nainital to 35.3 per cent in Uttarkashi in the mountain districts and between 4.3 per cent in Hardwar to 8.4 per cent in Dehradun in the plain districts. In the case of males, the WPR ranges from being the lowest at about 29 per cent in Chamoli and Garhwal districts to highest at 42.3 per cent in Uttarkashi. It needs to be mentioned that except in Nainital and Uttarkashi, male WPR is less than the state average of 38.1 per cent in all the mountain districts (Table 3.9).

The declining pattern of WPRs (male and female) during, 1991-2001, in the state has been more pronounced in Chamoli and Pithoragarh, where these declined from 42 per cent in 1991 to around 26 per cent in 2001. However, a look at the WPRs over the last three decades, also reveals a steady decline in Uttarkashi, Chamoli, Tehri Garhwal and Garhwal districts, whereas in Almora, Pithoragarh and Nainital, the WPRs increased during the decade 1981-91, and then declined in the following decade (1991-2001) (Table 3.9).

The inter-district disparity in WPRs, measured through the coefficient of variation, is very high for females as compared to that for males. However, it declined during the decade, 1981-91, both for males and females but increased in the case of males in 2001 and remained almost unchanged in the case of females (Table 3.8).

The relatively high WPR for females, particularly in mountain districts, cannot be treated as a development indicator. In fact, owing to low per capita income women are forced to take up agriculture and animal husbandry related works as a part of the survival strategy of a household in a region where tough terrain requires more human labour for agricultural works. The high incidence of migration of male members also requires females to take up work in agriculture.

Table 3.9
District-wise Workforce Participation Rate (Main Workers)

District	1981			1991			2001		
	Person	Male	Female	Person	Male	Female	Person	Male	Female
Almora	31.51	40.26	23.42	40.22	41.85	38.71	32.67	33.65	31.81
Bageshwar*							34.44	34.09	34.76
Chamoli	44.74	45.94	43.60	42.30	44.79	39.83	26.08	29.05	23.17
Champawat*							25.04	32.75	17.51
Dehradun	32.56	52.73	7.70	32.42	50.66	10.80	26.29	42.14	08.41
Garhwal	36.21	42.21	30.71	31.91	40.67	23.65	24.70	29.48	20.38
Hardwar	-	-	-	28.90	50.90	2.90	24.53	42.11	04.27
Nainital	31.68	51.83	7.71	32.35	50.08	11.97	29.20	41.61	15.50
Pithoragarh	38.33	44.90	31.85	41.04	45.52	36.49	26.83	31.07	22.71
Rudraprayag*							32.65	35.46	30.13
Tehri Garhwal	44.69	46.32	43.19	39.59	42.99	36.38	29.96	35.88	24.31
Udham Singh Nagar*	-	-	-	-	-	-	24.20	40.68	05.94
Uttarkashi	52.12	57.79	45.69	47.97	50.70	45.00	38.92	42.33	35.30
Uttaranchal	-	-	-	35.17	47.33	22.19	27.39	38.13	16.24
Uttaranchal exl. Hardwar	36.19	47.69	24.21	36.36	46.61	25.62	27.98	37.27	18.53
CV	19.63	11.54	59.59	15.55	8.01	53.91	15.29	12.58	52.92

*Note:** Same as in Table 3.3.

4. Growth of Workforce

The declining WPR is accompanied by the absolute decline in the number of main workers in Uttaranchal during the period, 1991 to 2001—from 2155 thousand to 1969 thousand, the annual compound decline being -0.65 per cent for all main workers. Though there has been a decline in the number of both male and female workers, it is highest among females at -1.1 per cent per annum during the period, 1991-2001.The absolute decline in the number of main workers is observed only in rural areas. As against this pattern, in urban areas female employment increased by 3.8 per cent per annum and that of males by about 1.4 per cent during the decade, 1991-2001. While looking at the decade, 1981 to 1991, there has been a positive growth of more than two per cent in the case of main workers in the state (Table 3.10).

Table: 3.10
Annual Compound Growth Rate of Workers in Uttaranchal

Area/Sex	Main workers		Main plus marginal workers	
	1981-91@	1991-2001	1981-91@	1991-2001
Rural				
Person	1.80	-1.28	1.99	0.55
Male	1.38	-1.17	1.45	0.74
Female	2.46	-1.47	2.65	0.33
Total				
Person	2.10	-0.65	2.25	1.07
Male	1.84	-0.45	1.89	1.22
Female	2.61	-1.12	2.78	0.81

Note: @ Excluding Hardwar district.
Source: Computed from Census of India, 1981, 1991 and 2001.

Taking both the main and marginal workers together, their number increased from 2494 thousand in 1991 to 2707 in 2001, recording a compound annual growth rate of 1.07 per cent in the state. The growth has been comparatively higher at 1.2 per cent in the case of male workers than in the case of females at 0.81 per cent. There has been tremendous deceleration in the growth of total workers in Uttaranchal—2.25 per cent during the decade 1981-91 to 1.1 per cent during the decade 1991-2001. However, the decline in the growth rate of female workers is steeper—2.8 per cent during 1981-1991 to 0.8 per cent during 1991-2001—than that of male workers (Table 3.10). In brief, the rural areas of the state witnessed a steep deceleration in employment growth during the decade 1991-2001 (Table 3.10). Also, there has been a steep rise in the proportion of marginal workers in the state during the 1990s.

The district-wise growth rates of workers (both main and marginal) show the absolute decline in the number of female workers in Tehri Garhwal and that for males in Garhwal during the decade, 1991-2001. In the mountainous districts, there is less than half per cent growth in the number of workers in all the districts except in the districts of Chamoli, Uttarkashi and Nainital during 1991-2001. Hardwar, a plain district, witnessed the highest growth rate of 2.5 per cent in the number of workers with the highest being in the case of females (more than 10 per cent) (Table 3.11). The annual growth in employment has been comparatively much higher during the earlier period, i.e. 1981-91 in all the

districts except Garhwal (-0.29 per cent) and Tehri Garhwal (0.38 per cent). In fact, these are the two districts, which witnessed a large scale withdrawal of females from the workforce since the onset of 1980.

The steep decline in the growth of workforce along with the growing marginalisation of workers, particularly females, shows the receding employment opportunities in the state. This is also borne out by NSS data. Though the steep increase in literacy among females is also cited as a cause for the decline in their work participation, this is not supported by the district-wise pattern of growth of workers and literacy. Despite the phenomenal increase in literacy rates, for example, in Tehri Garhwal and Chamoli, the female employment decreased in absolute terms in the former, whereas it increased sharply in the case of the latter during the decade, 1991-2001.

Table: 3.11
District-wise Annual Compound Growth of Main plus Marginal Workers

District	1981-1991			1991-2001		
	Person	Male	Female	Person	Male	Female
Almora	2.74	1.28	4.14	0.45	0.38	0.52
Chamoli	1.58	2.03	1.16	2.04	1.95	2.12
Dehradun	3.12	2.43	6.65	1.23	1.36	0.65
Garhwal	-0.29	0.33	-0.91	0.04	-0.30	0.40
Hardwar	-	-	-	2.54	1.75	10.36
Nainital	4.46	2.95	10.31	1.26	1.64	0.16
Pithoragarh	1.98	1.64	2.33	0.50	0.81	0.19
Tehri Garhwal	0.38	0.80	0.01	0.10	0.64	-0.42
Uttarkashi	1.41	0.85	2.09	1.12	1.22	0.99
Uttaranchal				1.07	1.22	0.81
Uttaranchal exl. Hardwar	2.25	1.89	2.78	0.86	1.11	0.50

Source: Computed from Census of India, 1981, 1991 and 2001.

The reasons for the declining employment opportunities in the state need to be investigated in detail. At the outset, however, it can be definitely said that women still remain the backbone of the mountain economy considering that their participation in the workforce (main plus marginal) remained comparatively higher, as can be seen from the fact that the difference between female and male WPRs in Uttaranchal is relatively less than in India. The following chapters will

show that the higher incidence of male out-migration from rural areas in mountain districts has hardly unleashed the burden of the rural females in their struggle to maintain their livelihoods. Indeed despite attaining higher literacy levels, they could hardly reap the benefit of any occupational diversification.

5. Structure of Employment

The Population Census data on the structure of employment are available only for four of the broad nine industrial categories for the year 2001, for main plus marginal (total) workers, i.e., cultivators, agricultural labourers, household industries and other workers. By combining the first two categories, one can know roughly the share of agriculture sector in employment, though it excludes workers engaged in other allied activities like livestock, forestry and fisheries. Figures for 1991 show that these activities employed only about 2 per cent of total workers (main). The structure of employment is presented in Table 3.12. It shows that agriculture is still a predominant source of employment in Uttaranchal as about 58 per cent of the workers (both main plus marginal) are employed in it (consists of 49.8 per cent in cultivation and 8.3 per cent as agricultural labour) (Table 3.12).

In rural areas, about 62 per cent of the workers are engaged in cultivation and another 9.7 per cent as agricultural labourers. Thus, agriculture alone employs about 72 per cent of rural workforce in the state while the remaining 28 per cent workers are engaged in rural non-farm employment (Table 3.12).

Keeping in view the comparatively high WPRs among rural females in Uttaranchal, the structure of workforce can be viewed as highly gender-biased with women predominantly working in agriculture and their male counterparts in the non-agriculture works—84 per cent of all female workers are in agriculture while 56 per cent of male workers are in non-agricultural activities. Even in the rural areas, as against 40 per cent of male only 11 per cent of female workers are engaged in non-agricultural activities.

Table 3.12
Percentage Distribution of Workforce (Main plus Marginal) in Uttaranchal, 2001

Area/Sex	Cultivator	Agricultural labour	Sub- total	Household industries	Other workers	Total
Rural						
Person	61.75	9.75	71.50	2.07	26.43	100.00
Male	46.74	12.35	59.09	2.07	38.84	100.00
Female	82.33	6.19	88.52	2.07	9.42	100.00
Total						
Person	49.77	8.26	58.03	2.23	39.74	100.00
Male	34.20	9.51	43.71	2.14	54.15	100.00
Female	77.48	6.02	83.50	2.40	14.10	100.00

Source: Census of India, 2001, Electronic Data.

The NSS 55th Round data on employment and unemployment shows that nearly two-thirds (64.5 per cent) of workers (UPSS) are employed in agriculture and allied activities in Uttaranchal (excluding Hardwar) in 1999-2000—the share being comparatively higher than the Census figures. Next to agriculture is the services sector, which employed 20.8 per cent of the workforce in the state. The remaining 15 per cent workforce is employed in the secondary sector. The share of manufacturing in employment in the state is abysmally low at about 5.5 per cent. Within the services sector, public administration accounts for the largest share—employing nearly one-tenth of the total workforce (Table 3.13). Thus, the share of agriculture in employment is still higher by 6.6 percentage points in Uttaranchal in comparison to India.

In the case of rural areas in Uttaranchal, about 82 per cent workers (UPSS) are employed in agriculture and allied activities in 1999-2000 and the remaining 18 per cent in rural non-farm activities. The share of rural non-farm employment is thus comparatively lower by about five percentage points in Uttaranchal than the national average (Fig. 3.2). Within the non-farm sector in the state, construction is a dominant activity in rural areas as it employed about 7.6 per cent of the rural workforce in the state. 'Other services', that are mainly public services, is the next largest employer accounting for about 4 per cent share in rural employment. Gender-wise, about 38 per cent of rural male workforce is employed in the rural non-farm sector. On the other hand, more than

96 per cent of rural female workers are employed in the agricultural sector during the year, 1999-2000 (Table 3.13). Thus, rural non-farm employment was mainly the domain of males, with limited access to female workers.

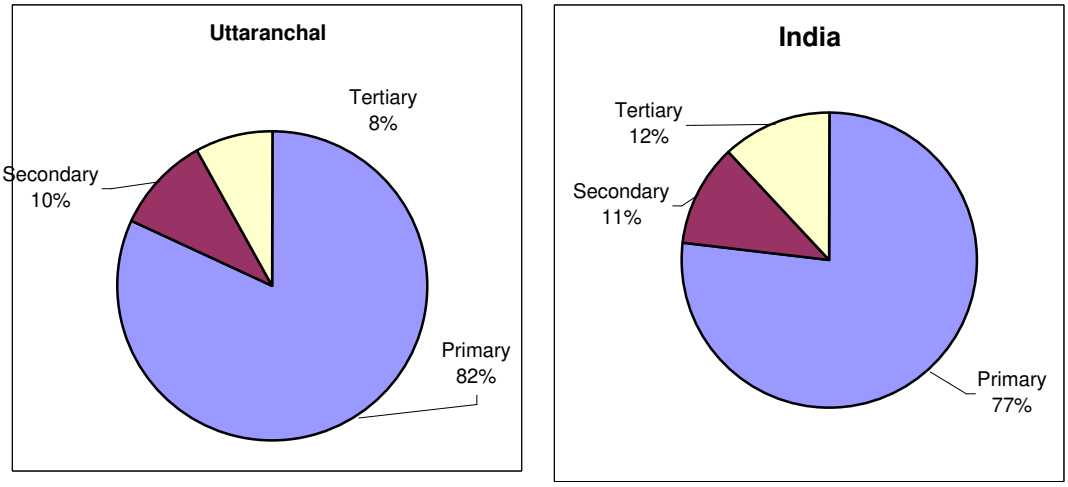
Table: 3.13
Percentage Distribution of Workers (UPSS) by Industrial Category in Uttaranchal

Industry	1983	1987-88	1993-94	1999-2000
	Rural			
Agriculture etc.	82.18	82.29	84.42	79.49
Mining & quarrying	0.28	0.07	0.27	0.00
manufacturing	2.83	5.80	1.52	3.49
Electricity water etc.	0.05	0.04	0.10	0.25
Construction	1.27	5.07	4.51	7.71
Trade, hotel and Restaurant	1.35	1.91	1.52	2.06
Transport etc.	1.46	0.37	0.75	2.00
Fin. Inter, business act. Etc.	0.31	0.20	0.38	0.54
Pub. Adm., educn., comm. Serv., etc.	10.26	4.26	6.36	4.36
Total	100.00	100.00	100.00	99.61
	Total			
Agriculture etc.	72.58	72.75	75.62	64.46
Mining & quarrying	0.25	0.06	0.32	0.00
manufacturing	3.94	6.51	2.74	5.50
Electricity water etc.	0.12	0.44	0.23	1.06
Construction	1.78	5.62	4.25	8.23
Trade, hotel and Restaurant	3.76	4.61	3.66	6.75
Transport etc.	2.36	0.80	1.63	2.43
Fin. Inter, business act. Etc.	0.87	0.74	0.94	1.70
Pub. Adm., educn., comm. Serv., etc.	14.17	8.47	10.45	9.87
Total	100.00	100.00	100.00	100.00

Source: NSSO, Households Unit Record Data for 38th, 43rd, 50th and 55th Round.

The gender inequity in work distribution has made women vulnerable to not only to put in hard labour on their lands but also suffer due to the drudgery of work and seasonal fluctuation both in crop output and employment (Pande, 1996). What is more they have to be engaged in daily household chores like cooking, cleaning, animal husbandry, child rearing besides fodder and fuel wood collection adding to their work load.

Fig. 3.2
Sectoral Distribution of Rural Workforce (1999-00)



6. Structural Shifts in Employment

The NSS data show a decline of more than six per cent in the share of agricultural sector in employment during the period, 1993-94 to 1999-2000, in the state. The corresponding increase in employment has been observed in all other sectors except in 'public administration', the share of which decreased marginally from 10.4 per cent to 9.9 per cent during the period. In particular, there has been a substantive increase in the share of manufacturing, construction and trade in total employment during the period, 1993-94 to 1999-2000. A look at the trend in earlier quinquennia, i.e. 1987-88 to 1993-94, reveals an increase in the share of agriculture in employment; a substantial decrease in the share of manufacturing from 6.5 per cent to 2.7 per cent and a corresponding increase in that of 'public administration'. The share of transport almost doubled from 0.8 per cent in 1987-88 to 1.6 per cent in 1993-94 (Table 3.13). These patterns broadly conform to the Census pattern. If we compare the industrial distribution of workforce during a comparatively longer period, i.e. 1983 to 1999-2000, the share of agriculture and allied activities declined by about 12 percentage points. Similarly, the share of public administration declined by more than 5 percentage points during the period. The corresponding increase has been in construction, trade and manufacturing sectors. A similar trend has been observed in the country as a

whole i.e., increasing share of trade and transport during the period 1983 to 1999-2000 and decline in that of public administration and other services in providing employment during the period, 1993-94 to 1999-2000 (Chadha, 2002).

The NSS data do not show any remarkable changes in the structure of employment in rural areas, as there has been hardly any significant decline in the share of agriculture in employment during the past 18 years, i.e. 1983 to 1999-2000 (Table 3.13). However, a remarkable feature is a steep decline in the share of public administrative services in rural employment from 10.3 per cent in 1983 to 4.4 per cent in 1999-2000 with a corresponding increase in that of construction, trade, transport and financial services during the period. During the period, 1987-88 to 1993-1994, except transport, which witnessed a steady increase in its share in rural employment, the share of manufacturing and trade declined whereas that of services increased from 4.3 per cent to 7.1 per cent.

What also clearly emerges from Table 3.13 that whatever has been the degree of structural changes in employment in Uttaranchal, it has been limited to male workers, and more so among the rural males. The share of male workers in agriculture significantly declined by more than 12 per cent points during the period, 1983 to 1999-2000 in the state. The corresponding increase in the share of male workers has been more pronounced in construction, trade and financial services, as also in rural areas. The share of 'public administration' in male employment also significantly declined by more than 10 per cent points both in rural areas and state as a whole during the period, 1983 to 1999-2000. On the other hand, though female employment did not witness any significant structural change, particularly in rural areas, there has been a noticeable increase in its share in public services from 2.4 per cent in 1983 to nearly 6 per cent in 1999-2000 in the state. This has been mainly due to improvement in the education level of females and reservation of jobs, particularly in teaching.

Likewise the pattern observed in NSS data, the census data shows that the share of the agricultural sector in employment (main workers) in the state decreased from 70.9 per cent in 1981 to 66.3 per cent in 1991 (Table 3.14) and

further to 60.6 per cent in 2001[4] (Table 3.15). The corresponding decline of its share in India has been from 69 per cent in 1981 to 67 per cent in 1991 and to 58.4 per cent in 2001. The share of the secondary sector in employment in Uttaranchal declined marginally from 8.8 per cent in 1981 to 8 per cent in 1991. Thus, the entire shift in employment from the primary sector, particularly in 1980s has been absorbed by the services sector in the state, which accounted for one-fourth of employment in the state in 1991. The corresponding figure for India is much lower at 20.5 per cent. Again, this kind of shift in employment has been mainly confined to rural male workers—their share in agricultural sector declined by 6 percentage points during 1981-1991 as compared to one percentage point of that of their female counterparts. A noteworthy feature, however, is that the pace of diversification of rural workforce from agriculture to non-agriculture has accelerated in the 1990s, as there has been a decline of about 6 percentage points in the share of agricultural sector in employment in rural Uttaranchal during the decade 1991-2001 (Tables 3.14 and 3.15). More importantly, the decline in the share of the agriculture sector in employment in rural areas has been the same for both the sexes.[5]

The district-wise pattern of employment by sectors (Table 3.15) shows that more than three-fourths of workers are employed in agriculture in Champawat (77.7 per cent), Uttarkashi (77 per cent), Rudraprayag (76.3 per cent) and Almora (76.3 per cent) as against, about one-fourth of workers in Dehradun and 41.7 per cent in Hardwar during the year 2001. The share of agricultural labour is highest in Udham Singh Nagar (about 25.6 per cent)—which notably is one of the agriculturally most prosperous districts in the state. Other districts with a comparatively higher percentage of agricultural labour are

[4] Relates to both main and marginal workers. Due to this, while comparing with the distribution of main workers, the share may likely to be at lower side since most of the marginal workers are generally found to be engaged in cultivation. At the same time, this share would marginally go up as the data relating to the workforce engaged in livestock, forestry and fishery are included in the category of 'other workers'.

[5] The substantive decline in the share of rural workforce (main) in agriculture in 1990s according to Census data contrasts the almost stagnant pattern observed in NSS data. This is owing to the fact that a growing proportion of workforce is withdrawing from agriculture as main workers yet remains engaged in agriculture (cultivation) in their subsidiary capacity.

Hardwar (19.1 per cent), Nainital (8.6 per cent) and Dehradun (7 per cent). Due to poor agricultural base, the demand for agricultural labour is abysmally low in most of the hilly districts in Uttaranchal with less than 3 per cent of workers constituting agricultural labour in these districts. Thus, as can be seen in Table 3.15, an overwhelming majority (more than 70 per cent) of the workforce in the mountain districts of the state is engaged in cultivation and more so in their rural areas.

Table: 3.14
Structural Shifts in Main Workforce in Uttaranchal*, 1981-1991

Sector/Industry	1981			1991		
Rural	Person	Male	Female	Person	Male	Female
Cultivators	74.72	62.54	95.55	70.11	54.73	93.08
Agricultural labourers	5.85	8.17	2	6.82	9.17	3.3
Livestock, fishing, forestry, etc.	1.53	2.32	0.22	1.9	2.94	0.36
Mining and quarrying	0.23	0.37	0	0.19	0.31	0.02
Manufacturing-household	1.3	1.76	0.53	0.83	0.99	0.58
Manufacturing- other than household	2.41	3.29	0.25	2.36	3.72	0.33
Construction	2.36	3.75	0.1	1.93	3.16	0.11
Trade and commerce	2.13	3.38	0.04	2.72	4.46	0.13
Transport, storage and communication	1.15	1.84	0.01	1.2	1.99	0.03
Other services	8.34	12.57	1.3	11.93	18.53	2.06
All						
Cultivators	63.77	49.61	89.87	58.13	41.33	89.34
Agricultural labourers	5.54	7.22	2.1	6.4	7.99	3.37
Livestock, fishing, forestry, etc.	1.61	2.28	0.25	2.2	3.14	0.43
Mining and quarrying	0.27	0.39	0.01	0.19	0.27	0.02
Manufacturing-household	1.49	1.86	0.73	0.86	0.93	0.72
Manufacturing- other than household	4.27	6.1	0.5	4.21	6.1	0.6
Construction	3.07	4.49	0.16	2.93	4.37	0.2
Trade and commerce	4.78	7.02	0.16	5.79	9.41	0.4
Transport, storage and communication	2.04	3.01	0.04	2.16	3.25	0.08
Other services	13.15	18.02	6.18	17.13	23.21	4.84
Total	99.99	100.00	100.00	100.00	100.00	100.00

Note: * Excluding Hardwar district.
Source: 1.*Census of India, 1981*, Series 22, Uttar Pradesh, Part III-A & B.
2. *Census of India, 1991, General Economic Tables,* Uttar Pradesh.

The share of rural non-farm employment is substantially higher in three districts namely, Dehradun (51 per cent), Hardwar (42.6 per cent) and Nainital (32 per cent), whereas in the remaining districts, it ranges between 18 to 30 per

cent, with as stated earlier, the larger share of rural non-farm employment being mainly in construction, trade and government services. This wide variation in the share of rural non-farm employment (sector-wise) among the districts is mainly due to their urban base—the three districts with highest share of rural non-farm employment have highest degree of urbanization in the state, which provide employment opportunities to the rural workforce mainly through commuting daily to nearby urban centres.

Table: 3.15

District-wise Percentage Distribution of Workers by Industry Division (Main plus Marginal), 2001

District	Total					Rural					Total
	Culti-vators	Agri. Lab.	Sub total	House-hold ind.	Other workers	Culti-vators	Agri. Lab.	Sub total	House hold ind.	Other workers	
Almora	74.77	1.38	76.16	1.18	22.66	79.48	1.47	80.95	1.18	17.87	100.00
Bageshwar	69.91	2.01	71.92	1.61	26.46	77.33	2.09	79.42	1.56	19.01	100.00
Chamoli	64.36	1.38	65.74	1.82	32.44	70.35	1.41	71.77	1.70	26.53	100.00
Champawat	74.67	3.07	77.74	1.88	20.38	76.20	3.12	79.31	1.87	18.81	100.00
Dehradun	18.64	7.01	25.65	2.22	72.13	36.25	13.07	49.31	2.57	48.12	100.00
Garhwal	67.06	1.55	68.62	1.15	30.24	73.85	1.68	75.53	1.10	23.37	100.00
Hardwar	22.63	19.06	41.69	3.98	54.33	31.44	25.97	57.41	4.29	38.30	100.00
Nainital	42.03	8.60	50.64	1.85	47.51	56.69	11.51	68.19	2.03	29.77	100.00
Pithoragarh	67.70	1.17	68.86	3.86	27.27	72.94	1.26	74.20	3.62	22.18	100.00
Rudraprayag	75.78	0.53	76.31	0.92	22.77	76.85	0.54	77.39	0.92	21.69	100.00
Tehri Garhwal	69.85	1.20	71.05	0.85	28.10	76.43	1.31	77.74	0.89	21.37	100.00
Udham Singh Nagar	29.72	25.63	55.35	3.30	41.35	40.13	32.83	72.96	2.20	24.83	100.00
Uttarkashi	75.10	1.91	77.00	1.42	21.57	79.01	2.01	81.02	1.45	17.53	100.00
Uttaranchal	49.77	8.26	58.03	2.23	39.74	61.75	9.75	71.50	2.07	26.43	100.00
Uttaranchal exl. Hardwar	54.04	6.56	60.60	1.96	37.44	65.88	7.54	73.42	1.77	24.81	100.00
India	31.71	26.69	58.4	4.07	37.52	42.14	31.2	73.34	3.77	22.9	100.00

Source: Registrar General of India (2002), *Census of India, 2001, Workers and Non-workers,* (Electronic Data), New Delhi.

7. Status of Employment

Self-employment is still a predominant mode of employment in the state as nearly three-fourths of the workforce (UPSS) was self-employed during the year 1999-2000, as against less than 55 per cent in India (Fig. 3.3). Gender-wise, the percentage of self-employed among females was much higher (87 per cent) than

their male counterparts (61per cent). There has been a significant decline of about eight percentage points in the share of self-employment in the state—it was highest in the case of females (about 11 percentage points) than males (4 per cent) during the period 1993-94 to 1999-2000 (Table 3.16).

Fig. 3.3

Status of Employment, 1999-2000: A Comparison

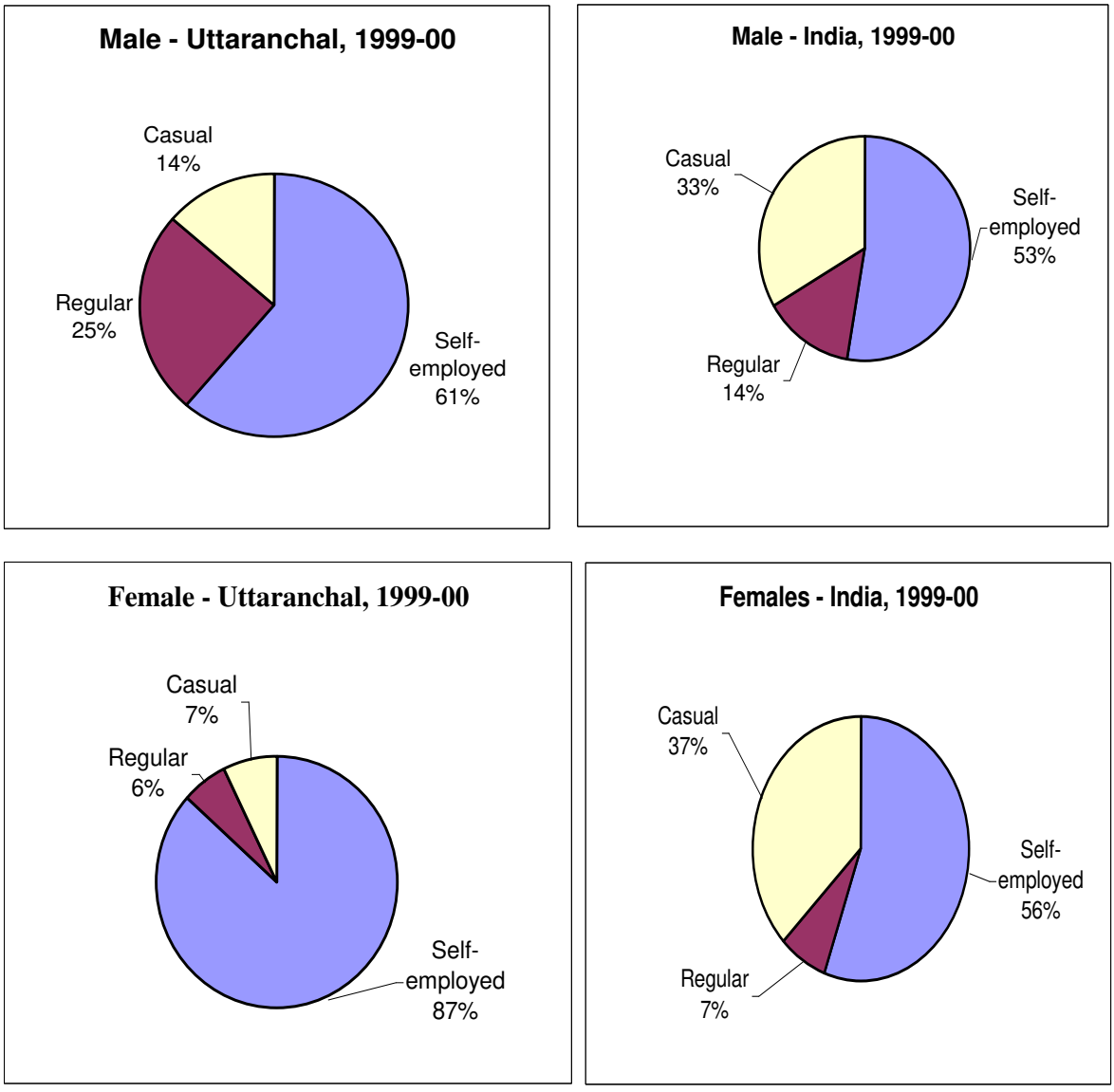


Table 3.16
Percentage Distribution of Workers by their Status of Employment (UPSS) in Uttaranchal

Year	Self-employed			Regular			Casual		
	Person	Male	Female	Person	Male	Female	Person	Male	Female
Rural									
1983	83.39	68.41	98.24	6.41	12.69	0.19	10.20	18.90	1.57
1987-88	85.45	72.71	97.34	6.47	12.77	0.60	8.07	14.52	2.05
1993-94	85.72	72.21	97.72	6.07	12.21	0.63	8.20	15.58	1.65
1999-2000	80.44	69.96	90.44	7.62	13.73	1.78	11.95	16.31	7.78
All									
1983	78.06	63.20	96.30	11.12	19.23	1.17	10.82	17.57	2.53
1987-88	80.48	67.59	95.17	11.72	19.57	2.77	7.80	12.84	2.07
1993-94	80.18	65.25	95.89	12.21	21.46	2.48	7.61	13.29	1.63
1999-2000	72.62	61.47	86.57	16.58	24.86	6.21	10.81	13.68	7.22

Source: NSSO, Houssehold Unit Record Data for 38th, 43rd, 50th and 55th NSS Rounds on Employment and Unemployment.

The decline in the share of the self-employed in the state has been accompanied by an increase in the share of both casual as well as regular workers during the quinquennia 1994-2000. The share of casual workers increased from 7.6 per cent in 1993-94 to about 11 per cent in 1999-2000, the increase being confined to females, as the share of casual labourers among males remained almost the same during the period. Looking at the longer period, i.e., 1983 to 1999-2000, it is found that the process of casualisation of male workforce rather had decreased in the 1980s and thereafter remained stagnant during the 1990s, while it increased in the case of females over the years (Table 3.16). This pattern has also been observed in the rural areas. The trend of decreasing share of self-employed in the state, though similar to the national pattern, differs from the latter significantly across the two sexes—the relative decrease in the share of self-employed females is sharper in Uttaranchal than India, whereas the opposite is true for males. Overall, the degree of casualisation of workforce is very low (about 10 per cent) in the state as compared to more than 33 per cent in India in 1999-2000.

The share of regular employment (both male and female) in the state increased from 11per cent in 1983 to 16.6 per cent in 1999-2000. The emerging trend clearly reveals that the benefit of regular employment opportunities has

largely been reaped by the males in Uttaranchal, their share in regular employment having steadily increased from 19 per cent in 1983 to about 25 per cent in 1999-2000. At the same time, despite the lower percentage of females in regular employment, their share increased from 1.2 per cent to 6.2 per cent during the period. As against this, the national trend showed a decline in the percentage share of regular workers among males from 18.2 per cent in 1983 to 14 per cent in 1999-2000 (NSSO, 2001).

Another distinct feature is the stability of the pattern of employment status among the male workers in rural areas during the past 18 years. This stability is probably indicative of the lack of wage employment opportunities in rural areas of the state. Similarly, the lack of alternative employment opportunities constrained an overwhelmingly large proportion of females to stick to agriculture despite their high work participation rate. As a result, the income levels of the majority of the workforce could not improve as much as is seen in Chapter II. This underscores the need for generating productive employment opportunities both in the farm and non-farm sector with a greater weightage to women workers in rural areas of the state.

After analysing the trends in employment, it will be worthwhile to examine briefly the magnitude and growth of employment in organised sector in the state. Thereafter, the progress of government employment programmes will also be analysed briefly.

8. Organised Sector Employment

In 1998, 273.2 thousand workers were employed in the organised sector in Uttaranchal constituting about 8.72 per cent of total employment in the state. The estimate of total employment (3132 persons) was derived by applying the NSS work participation rate (UPSS) for the 'hill region' for the year 1999-2000 on the interpolated population of the state for the year 1998. Thus, the share of organised sector employment in the state is very similar to that in India.

Within the organised sector, more than 86 per cent employment is accounted for by public sector—ranging between 98 per cent in Chamoli to 72

per cent in Nainital (Table 3.17). Notably, the latter district was bestowed with a sizeable number of private manufacturing establishments. The distribution of organised sector employment is highly skewed in Uttaranchal as nearly half the organised sector employment is located in two districts, namely, Dehradun and Nainital.

Females constitute nearly 12 per cent of the organised sector workers in the state and are mainly employed in social services like education and health. The share of females in the organised sector employment is lowest in Hardwar and Tehri Garhwal (Table 3.17).

Table 3.17
Organised Sector Employment in Uttaranchal, 1998

(Number)

District	Public	Private	Total	% of public sector	%age of women in organised sector	%age share of district in organised sector
Almora	25035	2100	27135	92.26	13.56	9.93
Chamoli	13521	261	13782	98.11	13.58	5.04
Dehradun	59673	9927	69600	85.74	12.93	25.47
Garhwal	20367	1500	21867	93.14	18.04	8.00
Hardwar	29055	4038	33093	87.80	5.90	12.11
Nainital	46748	18027	64775	72.17	11.49	23.71
Pithoragarh	17386	870	18256	95.23	11.91	6.68
Tehri Garhwal	14055	479	14534	96.70	8.70	5.32
Uttarkashi	9984	212	10196	97.92	11.78	3.73
Uttaranchal	235824	37414	273238	86.31	11.91	100.00

Note: Information for the new districts of Bageshwar, Rudrapryag, Champawat and Udham Singh Nagar is not available separately. It is included in their respective parent districts.
Source: Government of Uttaranchal (2002), *Sankhakiya Patrika: Uttaranchal, 2001,* Dehradun.

As per the national pattern, the growth of employment in organised sector in Uttaranchal decelerated over the years, particularly after the onset of economic reforms in 1991. The annual growth in employment in 1990s has been very low at less than 0.2 per cent, as against 2.4 per cent in the 1980s. Notably, the growth of employment in the private sector has been more than twice that is in the public sector in the 1990s (Table 3.18).

Table 3.18
Growth of Organised Sector Employment in Uttaranchal*

(No.)

Year	Public Sector	Private Sector	Organised Sector
1980	159581	26263	185844
1990	203763	32235	235998
1998	206769	33376	240145
Compound annual growth rate (%)			
1980-90	2.47	2.07	2.42
1990-98	0.18	0.44	0.22
1980-98	1.45	1.34	1.43

Note: * Excluding Hardwar districts.
Source: 1. Directorate of Training, Government of Uttar Pradesh.
2.Government of Uttaranchal (2002), *Sankhakiya Patrika*, *Uttaranchal, 2000-2001,* Dehradun.

9. Employment Generation Programmes

In order to ameliorate the problem of unemployment and underemployment, a number of direct employment generation programmes have been launched by both the central and state government in the past two decades in the country. Of these the two major employment generation programmes, namely, Jawahar Gram Samridhi Yojana (JGSY), a revamped form of Jawahar Rozgar Yojana (JRY), and Employment Assurance Scheme (EAS), are centrally sponsored with the shares of center and the state being in the ratio 75:25. However, there are significant differences in the conception and implementation pattern of these two programmes. While the JGSY aims at the creation of infrastructure at the village level and is implemented through the Panchayati Raj Institutions directly, the EAS has been initiated with the objective of providing 100 days of assured employment during the period of acute shortage of wage employment to rural poor. Prior to April 1, 1999, the EAS was a demand-driven scheme, which became allocation-based since then. The central assistance provided under programme is released directly to the district rural development agency (DRDA). The DRDA releases 70 per cent of fund to the Panchayat Samitis and the remaining 30 per cent funds are reserved at Zilla Parishad level and utilised in areas affected by endemic labour exodus/areas or distress. The Zilla Parishad is the implementation authority for the funds released to both Zilla Parishad and Panchayat Samitis.

The Food for Work Programme was introduced in January 2001 with the objective of meeting an unusually high demand for wage employment and food security due to the occurrence of natural calamities. In the subsequent period, it was felt that there was a need to merge different wage employment programmes in the rural areas so as to take care of food security, additional wage employment and village infrastructure at the same time. Accordingly, a new wage employment programme, namely, the Sampoorna Gramin Rozgar Yojana (SGRY) was launched on September 25, 2001. The expenditure of the scheme are shared by central and state governments in the ratio of 87.5:12.5. However, the cash component is shared between the centre and state in the ratio of 75:25.

During the year 1999-2000, a total of Rs. 7099.9 lakh was made available for the JGSY, out of which 80.8 per cent was spent during the same year in Uttaranchal. This led to the generation of 75.2 lakh mandays of employment in the state (Table 3.19). Similarly, an amount of Rs. 5029 lakh was made available for the EAS in the state during the year 1999-2000, out of which about Rs. 3068 lakhs were actually utilised, i.e. about 61 per cent of the available funds for EAS. Under this scheme, 38.3 lakh mandays were generated during the year—an achievement which was very close to its target (Table 3.20).

Table 3.19
Progress of Jawahar Gram Samridhi Yojana, 1999-2000

(in lakh)

District	Total funds available	Total expenditure	Expenditure as % of total funds	Mandays generated
Almora	583.02	462.6	79.3	6.12
Bageshwar	297.79	262.91	88.3	3.27
Chamoli	1002.47	981.13	97.9	13.26
Champawat	171.92	136.07	79.1	1.94
Dehradun	370.16	300.61	81.2	3.63
Garhwal	1078.68	904.92	83.9	11.56
Hardwar	243.43	204.05	83.8	2.4
Nainital	153.35	62.18	40.5	0.8
Pithoragarh	344.14	278.66	81	3.51
Rudrapryag	263.73	217.29	82.4	2.53
Tehri Garhwal	1019.23	898.11	88.1	11.89
Udham Singh Nagar	370.13	144.96	39.2	1.77
Uttarkashi	1201.86	880.91	73.3	12.55
Uttaranchal	7099.91	5734.4	80.77	75.23

Source: UPHDR (2002).

Table 3.20
Progress of Employment Assurance Scheme, 1999-2000

(in lakh)

District	Total funds available	Total expenditure	Expenditure as % of total funds	Mandays generated
Almora	591.03	213.82	36.2	2.63
Bageshwar	182.91	155.86	85.2	2.11
Chamoli	466.58	306.97	65.8	4.46
Champawat	177.91	168.81	94.9	2.59
Dehradun	360.79	165.22	45.8	1.75
Garhwal	630.3	394.97	62.7	4.59
Hardwar	340.59	293.64	86.2	3.4
Nainital	323.77	143.69	44.4	1.53
Pithoragarh	538.67	278.86	51.8	3.28
Rudrapryag	95.82	86.29	90.6	1.1
Tehri Garhwal	601.97	428.68	71.2	5.48
Udham Singh Nagar	446.08	214.55	48.1	2.63
Uttarkashi	272.71	216.65	79.4	2.77
Uttaranchal	5029.13	3068.01	61.0	38.32

Source: UPHDR (2002).

The district-wise progress of JGSY and EAS reveals a very divergent picture. Yet, what clearly emerges is the significant negative relation between the percentage of funds utilised and per capita income of the district. Districts like Nainital and Udham Singh Nagar had comparatively higher per capita income levels in the state, and yet spent comparatively a very low percentage of the funds allocated under JGSY as well as EAS.

The number of actual mandays of employment generated may in fact be smaller than the figures reported in official statistics as in some cases wages to be paid are higher than the stipulated wage rate.[6] A number of shortcomings in the implementation of employment generation programmes have been observed. The financial slippages have been large and considerable amount of available funds remain unutilised. The stipulations regarding the expenditure on various sectors and the proportion of wage cost pose problems at the implementation level and there are several reports on the misuse and misappropriation of allotted funds (UPHDR, 2002). The dismal performance of the employment generation

[6] This has been observed in Chapter IV. Also see Mamgain, 1994.

programmes is discussed later in Chapter V, which is based on our primary survey results.

III. UNEMPLOYMENT TRENDS

The problem of unemployment is one of the few policy concerns that are common to both the developing and developed economies. However, the nature of unemployment differs between the two types of economies. While developed economies have a low poverty level but high unemployment level, the developing countries basically have a high poverty level and low unemployment level. This is true for India where the overall unemployment rate was less than 2.4 per cent of the labour force in 1999-2000—1.7 per cent in rural areas and 4.7 per cent in urban areas—though it tended to decrease over the years. The low rate of unemployment is mainly due to the fact that in a poor society, there is little scope to remain unemployed for any substantial part of the year. Using the NSS data, Kundu (1996) has shown that the lower the consumption expenditure class of a household, the higher is the participation rate of man, woman and child. Chaubey (1998) explains this principle by modifying the backward bending labour supply curve. In other words, the poorer a society, the larger the number that will participate in the labour market.

Coming to the rural (hill) areas of Uttaranchal, NSSO's 55th Round (1999-2000) results on employment and unemployment show nearly 2 per cent labour force as unemployed by their usual status. The rate is marginally higher than all-India (rural) average of 1.7 per cent and also higher than many hill states (Table 3.21).

Looking at the trends in unemployment rates over time, it is observed that the rate of unemployment increased during the quinquinnum, 1993-94 to 1999-2000, after declining in the previous quinqunnum. This has been true for the rural areas and particularly for rural males (Table 3.21).

Due to their preoccupation with cultivation and other household chores, women in Uttaranchal, particularly in rural areas, generally do not report as ‘unemployed’. This is also reflected in their high WPR. That is why not a single

female reported to be usually unemployed till 1993-94. However, in 1999-2000, about 0.4 per cent of women labour force reported to be 'available for work' (Table 3.21). As is obvious, the incidence of unemployment is very high (at about 3 per cent) among females in urban areas than in rural areas (0.12 per cent) in 1999-2000. Also, the rate of unemployment is almost the same (about 3 per cent) among both males and females in urban areas in 1999-2000. Notably, at the all-India level, unemployment rates are significantly higher among women, both in rural and urban areas.

Table 3.21
Unemployment Rate in Uttaranchal and India

Area/Year	Uttaranchal			India		
	Person	Male	Female	Person	Male	Female
Rural						
1983	0.08	0.15	0.00	1.89	2.10	1.40
1987-88	1.98	4.02	0.00	3.05	2.80	3.50
1993-94	0.96	2.02	0.00	1.79	2.00	1.30
1999-2000	1.99	3.88	0.12	1.66	2.10	1.00
All						
1983	0.60	1.03	0.07	2.79	3.03	2.15
1987-88	2.43	4.48	0.00	3.85	3.67	4.24
1993-94	1.50	2.89	0.00	2.77	2.90	2.41
1999-2000	2.28	3.73	0.42	2.41	2.81	1.64

Source: NSSO, Household Unit Record Data for 38th, 43rd, 50th and 55th Rounds.

Overall, open unemployment is a male specific phenomenon in Uttaranchal and the unemployment rate among them is 3.7 per cent. The unemployment rate for males in Uttaranchal is consistently higher than the national average except in 1983. However, in the rural areas it is almost double than that at the all-India level in the year 1999-2000. Unlike the national pattern the incidence of unemployment was comparatively higher among rural males than urban males in Uttaranchal. The high incidence of unemployment among males is due to lack of intermittent employment opportunities, which could otherwise engage them in their subsidiary capacity. This is explored in Chapter V in detail.

To sum up, while the incidence of open unemployment in Uttaranchal is not high as compared to India as a whole, the major problem seems to be the

lack of regular employment opportunities along with high incidence of underemployment in terms of unutilized labour time and inadequate levels of income despite higher work participation, particularly in the case of rural female workers. Also, the lack of intermittent employment opportunities in rural areas of the state has been responsible for a high incidence of open unemployment among its male labour force.

IV. EDUCATIONAL AND HUMAN RESOURCE DEVELOPMENT

The significance of an adequately educated and technically trained manpower has been specifically recognised in economic theory since the middle of 1950s when research studies in the economics of education and growth, pioneered by T.W. Schultz (1961), Robert M. Solow (1957) and E.F. Denison (1962), highlighted the role of the 'residual factor', comprising mainly technology, education and health, in contributing to economic growth (OECD, 1963). This has resulted in according high priority to education in the programmes of socio-economic development. This role of education assumed added significance since the early 1990s after the initiation of economic reforms in India, which lay emphasis on competitiveness and increasing productivity.

Educational systems have, therefore, recorded impressive quantitative expansion in all states in India. Uttaranchal also witnessed an impressive expansion in the number of educational institutions and enrolment therein even much prior to its achieving a separate statehood in November 2000. This is why Uttaranchal today occupies the 9th place among the states in respect of literacy rate in the country. In the following paras, the progress achieved by Uttaranchal in the field of education in terms of expansion in educational institutions and enrollment is analysed.

The latest figures on enrollment for the state are quite encouraging as nearly 96 per cent children in the age-group 6-11 years are enrolled in schools. Similarly, in the age-group, 11-14 years, more than 90 per cent children are enrolled, and there is no gender bias in both the age-groups. The Uttaranchal Government envisages the achievement of 100 per cent enrollment of children

belonging to these two age groups by the end of 2003 (Government of Uttaranchal, 2002) (Table 3.22).

Table 3.22

Enrolment in Schools, 2001-2002

(No.)

	Boys	Girls	Total
Primary (6-11 years)			
Total children	585799	565725	1151524
Enrolled	561944	541352	1103296
% of enrolled	95.93	95.69	95.81
Senior basic (11-14 years)			
Total children	138839	126150	264989
Enrolled	127560	113884	241444
% of enrolled	91.88	90.28	91.11

Source: Government of Uttaranchal (2002), *Draft Tenth Five Year Plan(2002-2007) and Annual Plan (2002-2003),* Vol.1, Dehradun.

1. Primary and Middle Education

Uttaranchal has achieved considerable progress in terms of the growth in the number of educational institutions. The number of primary schools increased rapidly from 6769 in 1980-81 to 13203 in 2000-2001 (Government of Uttaranchal, 2001b). This has resulted in a significant improvement in the accessibility of primary schools as nearly 80 per cent villages have primary schools within each village. Similarly, enrolment of students in primary education almost doubled from 524 thousand in 1980-81 to 1051 in 1996.[7] The growth in girl enrollment has been more than 5 per cent which led their share in total enrolment to increase from 36 per cent in 1980-81 to more than 43 per cent in 1996.

Enrollment in middle education also witnessed a growth of 4.8 per cent during 1981-1996. More importantly the enrollment of girls in middle education increased by 7 per cent per annum, which led to an increase in their share from 26 per cent in 1981 to more than 40 per cent in 1996.

[7] The data for the period, 1981-96 do not include Hardwar district. For year-wise data on enrolment in primary education, see Joshi et al., 2000.

2. Secondary Education

Secondary education has a vital role to play in any programme of education and human development as it provides a gateway to many promising careers and employment avenues. There has been a steep growth of more than 4 per cent per annum both in the number of secondary schools and enrolment therein in Uttaranchal—the number of schools increased from 681 in 1981 to 1193 in 1996 and that of enrolment, from 132 thousand in 1981 to 271 thousand in 1996. The share of girls also increased from 26.4 per cent in 1981 to 34.7 per cent in 1996; yet it remains much lower as compared to the number of primary and middle level schools. This is clearly an indicative of comparatively much higher incidence of drop outs among girl students.

The expansion in primary and secondary education is also marked by glaring inequity—at one extreme there are several prestigious schools in Mussorie, Nainital and Dehradun which enroll most of the students from outside the state who belong to the most affluent section of the Indian society and on the other there are government and privately managed schools which enroll an overwhelmingly large majority of the students in the state but grossly lack in the quality of education offered by them. Shortage of trained teachers and large-scale absenteeism among teachers has been the bane of secondary education in the state (Nautiyal and Nauriyal, 2001).

3. Higher Education

An important feature of educational development in Uttaranchal relates to the higher transition of students from the school level to higher education over the years. The enrollment of girls in higher education increased at the rate of more than 11 per cent, during 1981-96, which was higher than in other levels of education. Accordingly, the share of girls enrolled for higher education increased from 28.7 per cent to nearly 42 per cent during the period.

Apart from attaining high enrollment of students in the age-group, 6-14 years, the state is also better placed in terms of ratio of students enrolled in secondary as well as higher education to its total population as compared to the

national average. The relative index of Uttaranchal in the case of secondary school enrollment rose from 158 in 1981 to 163 in 1991. Significantly, there has been relatively faster growth in girls' enrollment in secondary education in Uttaranchal as compared to India. Their relative index, therefore, increased by more than 23 points from 137.5 in 1981 to 160.1 in 1991 (Table 3.23).

Likewise, Uttaranchal achieved tremendous success in the growth of enrollment in higher education. As can be seen in Table 3.23, enrolment-population ratio in higher education for Uttaranchal has been almost the same as for India in 1981, the relative index for the former having increased to 150 as compared to India (100). The relative increase has been again more pronounced in the case of girls in the state. The relative index of Uttaranchal is expected to improve further in the 1990s as the state witnessed a faster growth in literacy during 1991-2001 both for its males and females. Thus, the relative advantage of Uttaranchal in attaining a transition to secondary and higher level education consists of its strong human resource base which can be transformed into human capital by providing market oriented education and training with reduced efforts.

Table 3.23
Enrollment per Ten Thousand Population in Uttaranchal* and India

Level/Sex	Enrolment per ten thousand population				Relative Index (100 for India)		CAGR	
	1981		1991				Uttaranchal	India
	Uttaranchal	India	Uttaranchal	India	1981	1991	1981-91	1981-91
Secondary								
Boys	394	241	529	321	163.49	164.8	3	2.91
Girls	154	112	270	168	137.5	160.11	5.78	4.14
Total	269	171	395	243	157.81	162.55	3.92	3.58
Higher								
Boys	47	46	74	55	102.17	134.55	4.64	1.8
Girls	16	17	52	31	94.12	167.74	12.51	6.19
Total	33	34	63	42	97.06	150	6.68	2.14

Note: *Excluding Hardwar district. Relative index is calculated with respect to All-India average.
Source: Computed by using data from IAMR (1998) and Joshi et al. (2000).

Though economic growth is driven by a complex set of variables including human capital, a number of studies point to the positive impact of primary and secondary education on growth (see, Barro, 1991; UNDP, 1996; ADB, 1997; ILO,

1998). There is also increasing evidence to show that education levels of the labour force are significant determinants of economic growth and productivity performance (ILO, 1998). Uttaranchal has yet to harness the advantage of the relatively higher levels of education capabilities of its population.

Technical Education

The role of technical education in promoting development has become abundantly clear over the years. The rapid growth of the present day developed economies is greatly attributed to their large proportion of technical workforce (ILO, 1998). Mathur and Mamgain (2002) find that technical education has a stronger impact on the per capita income, than general education. They also find the influence of lower level technical education as well as that of general education on non-agricultural development somewhat stronger than that of higher level technical education. This appears to indicate much greater pervasiveness of the influence of lower level technical and general education on the productive activities than that of higher level education, which normally is much more selective. They also observe that enhancement of both technical and vocational education helps to create conditions which alleviate poverty and that it would be incorrect to point to one or the other as more important for achieving this objective.

In Uttaranchal, facilities for technical education exist at three levels: certificate, diploma and degree. The number of technical institutions, which include polytechnics, agricultural universities and regional engineering colleges, increased from 9 in 1980-81 to 16 in 1994-95 and admission capacity more than doubled during the period. The state has one Indian Institute of Technology at Roorkee. Similarly, the number of industrial training institutions (ITIs) more than doubled over the years, but the seating capacity increased at a lesser rate (Table 3.24). In other words, the number of seats per ITI decreased from about 189 in 1980-81 to 141 during the year 1994-95. The number of teacher training institutes (TTIs) decreased from 20 to 16 during the period, 1980-81 to 1994-95, whereas their admission capacity tended to increase (Table 3.24). It can be seen

from the following Table that the growth of technical institutions in the state decelerated during the 1990s, the reason for which may partly be attributed to the process of economic reforms that adversely affected the investment in social sectors.

Table 3.24
Growth of Technical Education in Uttaranchal*

Year	Degree/diploma level			ITI			Teacher's training institutions		
	Number	No. of seats	Admission	Number	No. of seats	Admission	Number	No. of seats	Admission
1980-81	9	1010	956	23	4346	3588	20	804	496
1981-82	9	1012	992	23	4666	3938	20	864	524
1982-83	9	1115	1072	23	5078	3997	20	823	561
1983-84	9	1110	963	23	5080	4231	20	899	520
1984-85	9	1274	1134	26	5239	4259	20	939	493
1985-86	9	1384	1389	29	6184	5334	20	1014	513
1986-87	10	1433	1343	36	6583	6047	20	1320	623
1987-88	12	1261	1247	38	6877	6280	20	1183	585
1988-89	14	1830	1676	43	8130	6830	20	1243	582
1989-90	15	1872	1703	47	8299	6850	20	1256	429
1990-91	15	2204	1952	48	8167	9568	19	1357	510
1991-92	16	2117	1674	49	8129	6354	19	1493	570
1992-93	16	2095	1710	54	8223	5963	19	1382	650
1993-94	16	2292	1811	56	7697	5586	17	1422	491
1994-95	16	2054	1828	56	7904	5101	16	1435	529
CAGR									
1980-85	Nil	6.50	7.76	4.75	7.31	8.25	0.00	4.75	0.68
1985-90	10.76	9.75	7.04	10.60	5.72	12.40	-1.02	6.00	-0.12
1990-95	1.30	-1.40	-1.30	3.13	-0.65	-11.82	-3.38	1.12	0.73
1980-95	3.91	4.85	4.42	6.11	4.07	2.37	-1.48	3.94	0.43

Note: *Excludes Hardwar.
Source: 1. Government of Uttaranchal, *Sankhyakiya Patrika, 2001.*
2. Joshi et al. (2000).

The expansion in technical education in Uttaranchal, however, is marked with a disturbing trend, namely, the underutilisation of the capacity of technical education institutions, which aggravated in 1990s. This emerges clearly in Table 3.25 and Figure 3.4. On an average, about 20 per cent of seats remained unutilised in technical education institutions in the state. Specifically, more than one-fourth of the seats in the ITIs remained unutilised during the period, 1990-91 to 1994-95. Notably, more than 60 per cent of admission capacity remained unutilized in TTIs. The gross underutilisation of technical education facilities may

be due to four reasons: (i) overcrowding of few trades which are in greater demand, (ii) low levels of income of a larger segment of population, particularly in mountain areas, which compel many aspirants of technical education to join the labour market, (iii) inaccessibility of technical institutions due to physical constraints, and (iv) lack of access to information. An additional reason could be the reservation of seats for females in TTIs, which remain largely unutilised as there are sever restrictions on their mobility. Further, the long waiting period for absorption also discourages many to opt for teacher training.

Fig. 3.4a

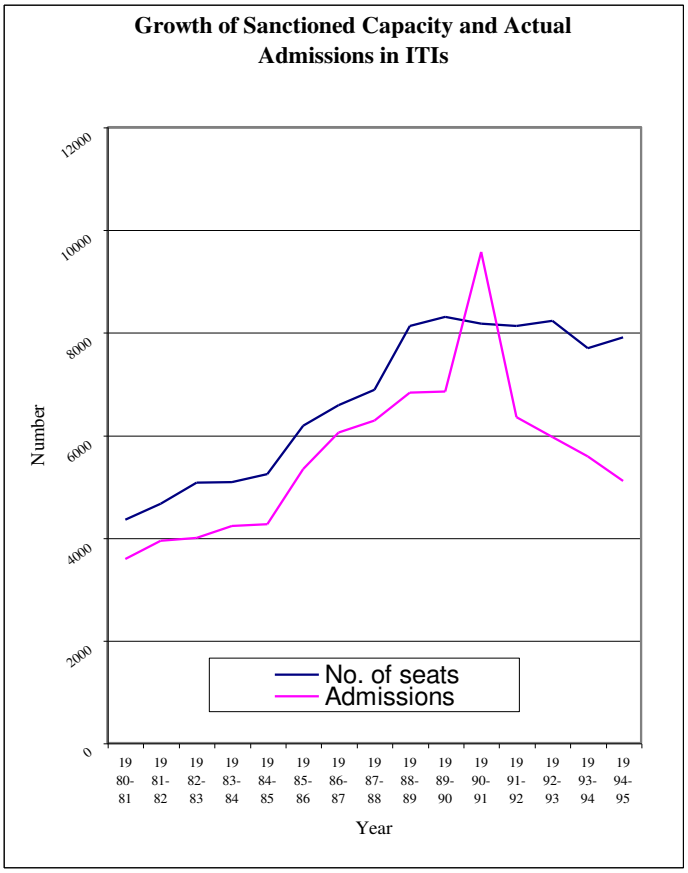
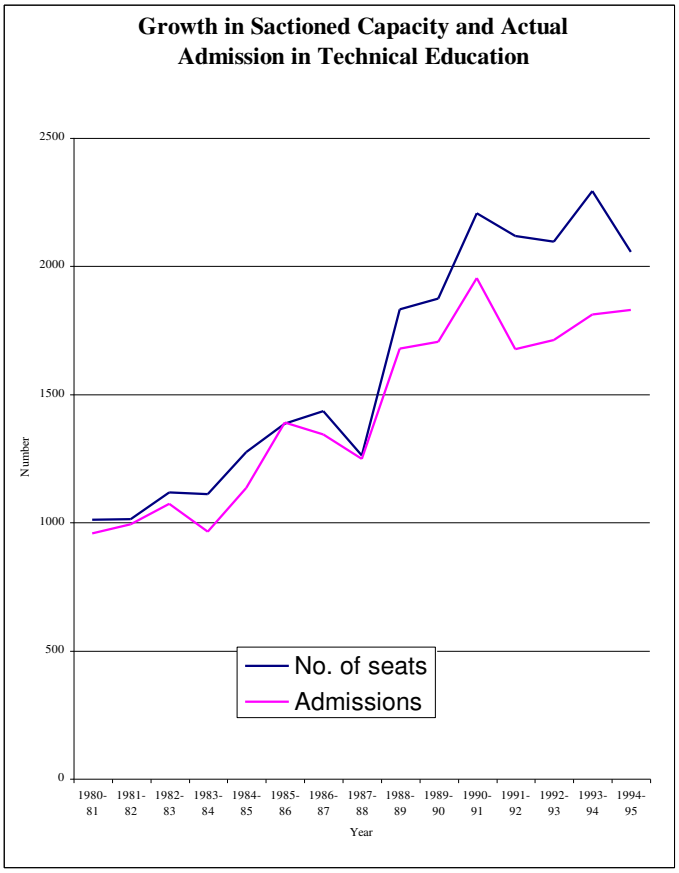


Fig. 3.4b



It is important to mention here that the mere expansion of technical education institutions does not ensure the enrolment of residents of that region/state. It has been observed that nearly half the students enrolled for diploma level technical education in Uttaranchal during the year 1994-95 are

from other states and at the degree level this proportion is even larger (Nautiyal and Nauriyal, 2001). This underscores the need to promote increased participation of students in technical education in the state.

Table 3.25
Capacity Utilisation in Technical Education Institutions

Year	%of admission in sanctioned capacity		
	Degree/diploma level	ITIs	TTIs
1980-81	94.65	82.56	61.69
1981-82	98.02	84.40	60.65
1982-83	96.14	78.71	68.17
1983-84	86.76	83.29	57.84
1984-85	89.01	81.29	52.50
1985-86	100.36	86.25	50.59
1986-87	93.72	91.86	47.20
1987-88	98.89	91.32	49.45
1988-89	91.58	84.01	46.82
1989-90	90.97	82.54	34.16
1990-91	88.57	117.15	37.58
1991-92	79.07	78.16	38.18
1992-93	81.62	72.52	47.03
1993-94	79.01	72.57	34.53
1994-95	89.00	64.54	36.86

Note: Calculated from Table 3.24.

The educational development in Uttaranchal has created an army of mostly unskilled labour force who are unwilling to work on their marginal farms and are unable to find suitable wage employment opportunities within the state, and thus seek to earn their livelihoods through migration (Mamgain, 2002). Also, the quality of education being provided in the schools and colleges, particularly in technical education institutions in the state, lacks mountain specifity, which could have otherwise helped students to stay back (Papola, 1996).

Technology has a vital role to play in transforming the subsistence economy of Uttaranchal, and therefore, human resource development is inevitably of special significance in the state. Thus, not only do we need to develop technical and vocational education and training with mountain-specific orientation but also the skills required in a market oriented economy, entrepreneurship, management of enterprises, and marketing being among them

(Papola, 1996). It must, however, be recognised that work-related education and training and their effectiveness in increasing productivity and raising incomes are only feasible and fruitful if there is a reasonably sound foundation of basic education and health services (Papola, 1996).

Thus, the daunting challenge before the planners of Uttaranchal essentially lies in developing an education system that leads to successful transition from school to work. This in turn will entail restructuring of the existing education programmes as well as institutions through (a) creating facilities of technical vocational education along with strengthening the existing ones with greater emphasis on quality education particularly at the level of lower technical education; (b) developing sound analytical, cognitive and behavioral skills along with the ability to communicate ideas to work cooperatively; (c) restructuring of courses and programmes by incorporating more mountain specificity; (d) ensuring participation of a larger proportion of students in vocational and technical courses, particularly of women who form the backbone of mountain economy in Uttaranchal; and (e) establishing close links between educational and training institutions and enterprises (Papola, 1996).

V. CONCLUSION

Uttaranchal is one of the few Indian states which witnessed faster deceleration in the growth of population particularly since 1981. The deceleration has been more pronounced in the mountainous districts of the state. This has been due partly to (a) a decline in the total fertility rates and (b) partly to high out-migration, especially of males, from these districts. This is clearly reflected in the very high sex ratios in the mountain districts which also tended to improve over the years. This is further substantiated by the fact that the sex ratio in the age-group, 0-6 years, in 2001 is generally low in the mountain districts of the state as per the all-India pattern. Thus, the high sex ratio in the mountain districts is not symbolic of the higher status of women. Also, there is a serious imbalance in the distribution of population in Uttaranchal as nearly 45 per cent of its population is residing in three plain districts of Dehradun, Udham Singh Nagar and Hardwar. This will

have its own implications, as it would necessitate the concentration of development efforts in these districts alone in the years ahead.

With the onset of the eighties Uttaranchal has achieved commendable success in attaining a higher level of literacy in comparison to many other regions of the country, particularly in the case of females. Today, it ranks ninth, among the Indian states in terms of literacy. Presently more than 95 per cent children, both boys and girls, in the age group 6-14 years are enrolled in schools, which is quite encouraging. Though there do exist inter-district disparities in the level of literacy attainments, these declined in the decade, 1991-2001. The high literacy rate in the state is also combined with high drop out rates among the students from class one to eight, which is more than the national average. Attaining higher literacy levels is, however, not sufficient as the competitive capabilities of any economy including Uttaranchal are greatly influenced by generic knowledge and technical skills of its population, which in turn act as facilitators of technological progress.

The state has also witnessed a rapid growth in secondary and higher education. As a result, Uttaranchal is better placed in terms of ratio of students enrolled in secondary and higher education to its population as is reflected in the growth in its relative index. This, strong human resource base of the state can be transformed into human capital with reduced efforts. For ensuring a successful transition from school to work, both the general and technical education system in the state would need to be restructured by incorporating more mountain specificity in it and also encouraging larger participation of all sections of the population in technical and vocational streams, particularly of women who form the backbone of mountain economy in Uttaranchal.

One of the distinguishing features of the state is higher labour force participation, which is primarily due to high participation of females in labour force, particularly in rural areas. Two divergent features are discernible in regard to the labour force in the state: (a) comparatively faster decline of both LFPRs and WPRs over the years, and (b) growing marginalisation of the workforce, particularly in the case of female population, during the 1990s. These features

are more pronounced in the rural areas of the state. Increased participation of females in education is generally being attributed to this decline. However, it is not surprising to find many females withdrawing from the labour force because (a) agriculture is increasingly becoming an uneconomic family enterprise and (b) employment opportunities outside agriculture are extremely limited. Improvement in household income is yet another possible explanation for the withdrawal of females from agriculture.

The Census data show an absolute decline in the number of main workers in the state from 2.16 million in 1991to 1.97 million in 2001, with the annual compound decline being –0.65 per cent. This has been the case both for males and females. Taking both the main and marginal workers, their growth halved from 2.3 per cent during the decade, 1981-1991 to 1.1 per cent during the decade, 1991-2001, the growth being even less than half per cent in most of the mountain districts.

Few distinguishing features of the structure of employment in the state merit mention. First, more than two-thirds of the workforce is employed in agriculture and allied activities—the percentage being more than 82 per cent in the case of rural workforce. Both Census and NSS data show highly gender biased work structure in the rural areas of the state as women overwhelmingly work in agriculture-related occupations while their male counterparts work in non-farm occupations. Second, there has been rapid shift of male workforce from agriculture to a non-agricultural sector, whereas this has not been so in the case of their female counterparts. Third, self-employment is the predominant mode of employment as over three-fourths of the workforce is self-employed. In other words, opportunities for casual wage employment are extremely limited in the state. It is assumed that a large share of those engaged in cultivation would join the casual wage works if opportunities to do so arise. Lastly, in keeping with the national trend, organised sector constitutes about 8.7 per cent of employment in the state, wherein its growth decelerated rapidly. However, the dissimilarity relates to the comparatively much lower share (nearly 12 per cent) of women in

the organised sector employment in the state as compared to the national average of more than 17 per cent.

Though land-based activities constitute the major source of livelihood for the majority of the workforce in the state and more so in the rural areas, the mountain districts of the state suffer from the scarcity of cultivable land, as it constitutes only 12.4 per cent of the reported area. This also means a very low per person cultivated area in comparison to many other regions in the country. Apart from the larger degree of marginalisation, the land holdings in mountain region of the state are also scattered, sometimes within a radius of 4-5 km. Cultivation of such land requires double labour time, both human and animal. This can also be seen in the form of higher work participation rates among the population in the state, particularly among the females. Agriculture is primarily rainfed, which has resulted in abysmally low levels of productivity and high degree of uncertainty in production. The available technical know-how in the field of agricultural development could not make any meaningful contribution towards development of mountain agriculture.

This explains why all the mountain districts in Uttaranchal are food-deficient (IDFC, 2002), as a result of which a majority of the rural households are forced to diversify their activities as a part of their survival strategy. Apart from engaging themselves in multiple gainful activities, migration has emerged as an important household strategy to cope with the seasonality and uncertainty of production. This is generally not captured by the existing secondary data sources. This is why we have undertaken a primary survey of rural households in Uttaranchal to fill this gap.

The major problem of Uttaranchal seems to be the lack of regular employment opportunities outside the farm sector and high incidence of underemployment in terms of unutilized labour time and inadequate levels of income despite higher work participation, particularly in the case of rural female workers. They could be seen involved in some or other productive activities as a part of their survival strategy throughout the year. On an average, a mountain women remains engaged in subsistence activities for nearly eight hours daily

apart from being preoccupied with daily household chores. Given such a scenario the focus of employment policy should be on raising the income levels of the already employed through improvement of productivity and generation of additional supplementary employment opportunities. This would necessitate introduction/improvement of technologies on a large scale, which would ultimately reduce the drudgery of work particularly in agriculture (Papola, 1996). Further, employment programmes should be devised keeping in view the employment requirements of women, particularly in the rural areas. Unfortunately, the Draft Tenth Plan Document of Uttaranchal gives a casual treatment to the problem of unemployment apart from the usual emphasis on promoting agricultural diversification, tourism, IT, etc. In fact, the policy document fails to clearly spell out employment policy of the state, which had been the core issue behind the movement for a separate statehood of Uttarakhand.

Annexure 3.1

Literacy Rate by Rural and Urban Areas (Aged 7 years and above), 2001

District	Area	Person	Male	Female	Gender difference
Uttarkashi	Total	66.58	84.52	47.48	37.04
	Rural	64.70	83.55	45.10	38.45
	Urban	87.46	93.93	78.48	15.45
Chamoli	Total	76.23	89.89	63.00	26.89
	Rural	74.17	89.08	60.54	28.55
	Urban	88.95	93.96	81.98	11.98
Rudraprayag	Total	74.23	90.73	59.98	30.75
	Rural	74.14	90.90	59.84	31.06
	Urban	81.67	82.14	80.51	1.63
Tehri Garhwal	Total	67.04	85.62	49.76	35.86
	Rural	64.82	84.84	47.34	37.50
	Urban	86.67	90.78	79.91	10.86
Dehradun	Total	78.96	85.87	71.22	14.64
	Rural	71.42	80.42	61.57	18.85
	Urban	85.35	90.37	79.61	10.77
Garhwal	Total	77.99	91.47	66.14	25.33
	Rural	76.41	91.25	64.01	27.24
	Urban	88.28	92.66	82.94	9.72
Pithoragarh	Total	76.48	90.57	63.14	27.43
	Rural	74.51	89.81	60.40	29.41
	Urban	90.19	95.34	84.33	11.00
Bageshwar	Total	71.94	88.56	57.45	31.11
	Rural	71.44	88.47	56.77	31.70
	Urban	86.86	90.78	81.98	8.81
Almora	Total	74.53	90.15	61.43	28.72
	Rural	72.73	89.47	59.31	30.16
	Urban	92.54	95.47	88.68	6.79
Champawat	Total	71.11	88.13	54.75	33.38
	Rural	69.44	88.32	51.93	36.38
	Urban	80.51	87.20	72.69	14.51
Nainital	Total	79.60	87.39	70.98	16.41
	Rural	78.02	87.62	67.61	20.01
	Urban	82.40	87.00	77.16	9.84
Udham Singh Nagar	Total	65.76	76.20	54.16	22.04
	Rural	62.88	74.54	50.11	24.43
	Urban	71.56	79.48	62.50	16.97
Hardwar	Total	64.60	75.06	52.60	22.46
	Rural	58.16	70.56	44.15	26.41
	Urban	77.91	84.14	70.52	13.62
Uttaranchal	Total	72.28	84.01	60.26	23.75
	Rural	68.95	82.74	55.52	27.22
	Urban	81.5	87.21	74.77	12.44
Uttarnchal exld. Hardwar	Total	73.81	85.91	61.68	24.23
	Rural	70.89	85.12	57.39	27.73
	Urban	82.43	88.00	75.86	12.14
India	Total	65.20	75.64	54.03	21.61
	Rural	59.21	71.18	46.58	24.60
	Urban	80.06	86.42	72.99	13.43

Source: Registrar General of India (2001), *Census of India 2001, Provisional Population Total: Uttaranchal*, Paper 1 of 2001, Series 6.

Annexure: 3.2

Industrial Distribution of Workforce in Uttaranchal by Sex, 1983-2000

Sector/Industry	1983			1987-88			1993-94			1999-2000		
	Male	Female	Person	Male	Female	Person	Male	Female	Person	Male	Female	Person
Rural												
Agriculture & allied	65.05	99.14	82.18	68.12	95.50	82.29	68.29	97.82	83.21	61.63	96.14	79.29
Mining & quarrying	0.57	0.00	0.28	0.14	0.00	0.07	0.60	0.00	0.30	0.00	0.00	0.00
Manufacturing	5.69	0.00	2.83	8.46	3.32	5.80	2.84	0.25	1.53	7.97	0.00	3.49
Electricity	0.09	0.00	0.05	0.08		0.04	0.22	0.00	0.11	0.51	0	0.25
Construction	2.55	0.00	1.27	10.24	0.24	5.07	9.79	0.31	5.00	13.13	2.33	7.61
Trade	2.56	0.16	1.35	3.83	0.12	1.91	3.11	0.00	1.54	4.21	0.00	2.06
Transport	2.94	0.00	1.46	0.77	0.00	0.37	1.69	0.00	0.84	4.11	0.00	2.00
Financial services	0.62	0.00	0.31	0.41	0.00	0.20	0.57	0.28	0.42	1.09	0	0.54
Other services	19.92	0.70	10.26	7.95	0.81	4.26	12.88	1.35	7.05	7.34	1.52	4.36
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	99.61
All												
Agriculture & allied	52.74	96.88	72.58	55.48	92.40	72.75	55.65	95.09	73.78	44.41	89.55	64.46
Mining & quarrying	0.45	0.00	0.25	0.11	0.00	0.06	0.66	0.00	0.36	0.00	0.00	0.00
Manufacturing	7.13	0.00	3.94	9.03	3.64	6.51	4.68	0.47	2.75	8.41	1.86	5.50
Electricity	0.22	0.00	0.12	0.82	0.00	0.44	0.47	0.00	0.25	1.91	0.00	1.06
Construction	3.23	0.00	1.78	10.27	0.33	5.62	8.45	0.29	4.70	13.08	2.16	8.23
Trade	6.63	0.24	3.76	8.05	0.70	4.61	6.79	0.30	3.81	11.76	0.48	6.75
Transport	4.22	0.00	2.36	1.50	0.00	0.80	3.33	0.00	1.80	4.37	0.00	2.43
Financial services	1.53	0.00	0.87	1.19	0.23	0.74	1.63	0.26	1.00	3.00	0.07	1.70
Other services	23.73	2.44	14.17	13.55	2.70	8.47	18.33	3.58	11.55	13.06	5.87	9.87
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	99.99	100.00

CHAPTER IV

ACCESS TO LIVELIHOOD ASSETS AMONG SAMPLE HOUSEHOLDS

I. INTRODUCTION

After examining the macro features of the economy of Uttaranchal in Chapters II and III, the present chapter delineates the characteristics of the sample households and population with a focus on access to livelihood assets. The socio-economic features of a household determine to a large extent its overall well being in terms of achieving sustainable livelihoods, better education and health, etc. The analysis, therefore, will help in understanding the dynamics of access to livelihood assets and livelihood strategies being adopted by various groups of rural households in the mountain region of Uttaranchal.

For the purpose of analysis, the sample households have been grouped into different categories on the basis of different socio-economic and locational characteristics. The first categorisation is made on the basis of ownership of land, the access to which significantly determines the livelihood patterns of a household. In the mountain region of Uttaranchal, though an overwhelming majority of households have marginal landholdings, there exist inequities even within the given marginality. Accordingly, households are grouped into six land class categories. The utility of such classification of households is, however, subject to serious limitations, particularly in the context of mountain areas—a single size category of land holding may conceal wide variations in the physical qualities of land, viz., type of soil, fertility, irrigation, land utilisation, cropping pattern, extent of fragmentation, etc. As such it is not an accurate measure of the farming unit.[1]

The second categorisation is made according to caste, which is similar to the castes mentioned in the State List. Like in other Indian societies, caste is a dominant social institution in the mountain societies. Among the upper castes,

[1] For a discussion of these issues in the contemporary Indian context, see Patnaik (1972) and Ramachandran (1990).

Brahmins and Rajputs are prominent. Scheduled Castes (SCs) form the socially deprived sections of the society who also constitute a substantial share of the population of the mountain region in Uttaranchal. The other castes include Scheduled Tribes (STs) and Other Backward Castes (OBC), which are proportionately fewer in the mountainous districts of Uttaranchal.

The third categorisation of the sample households is based on the principal occupation of the head of the household. Different studies[2] find the occupation of head of the household as an important factor in determining its social and economic status. According to this criterion, the sample households are divided into seven categories, viz, cultivator, casual wage labour (agriculture as well a non-agriculture), salaried worker (petty job, mostly informal sector workers), salaried worker (white collar job, mostly organized sector workers in government service), self-employed in petty trade and business, other self-employed (caste-based), and non-worker (including pensioner). Since out-migration is an important feature of mountain economy of Uttaranchal (Whittakar, 1984; Khanka, 1988; Bora, 1996), the sample households are also classified into two categories—those having at least one migrant worker (migrant household) and those without any migrant worker in the household (non-migrant household). This will help to differentiate the socio-economic characteristics of the sample households.

Locational factor like 'proximity to urban centers/rural towns' substantially influences the nature of economic activities and thus labour market conditions (Bhalla, 1993; Papola, 1992). The households/villages are grouped into three categories on the basis of their distance from market center (here district headquarter) and connectivity by road as: peri-urban, semi-interior and interior. A market center referred to here is not necessarily a town/city, but rather a rural *bazar*/town—a place where non-farm activities are predominant, thus accounting for its urban characterisation.

[2] See for example Lechaud (1994), Dreze (1997) and Sharma et al. (2001) for the rationale of categorisation of households on the basis of the occupation of head of households.

Households are also categorised into five groups on the basis of degree of agricultural diversification, i.e. the percentage of gross cultivated area under fruits, vegetables and commercial crop production. As a survival strategy, rural households undertake multiple activities. Besides, a substantive proportion of workers are engaged in more than one activity (Ker et al., 2001). This is also a prominent feature of the mountain population. To capture the determinants of multiplicity of jobs, households are grouped into four livelihood categories. Households are also grouped on the basis of their per capita income.

Groupings of households with different characteristics are juxtaposed against each other to examine their association with each other. In the following sections, the socio-economic profile of the sample households and population, particularly their access to livelihoods assets is analysed in the context of above mentioned household groups.

The sample consists of 399 rural households from the mountain region of Uttaranchal. The distribution of sample households under above-mentioned household groups is given in Table 4.1. As can be seen in the Table, more than 80 per cent of the sample households belong to the marginal landholding class, who own less than 2.5 acres of land. Among the marginal land holding households, 36.8 per cent own upto 0.5 acre of land and thus may be termed as 'close to landlessness' households and another 32 per cent households own landholdings between 0.5–1.5 acres. Thus, among the marginal land class category only 12.8 per cent households own land between 1.5 – 2.5 acres. Another one-tenth of the sample households are landless and none is a large landowning household (more than 10 acres). Macro data also show more than 70 per cent land holdings being marginal in mountain districts in the state. Land holdings owned by the households are fragmented and that too are widely scattered which require a tremendous amount of human and bullock labour. Thus, given the marginality of land holdings, this pattern of land ownership among the sample households clearly reflects its iniquitous distribution in the mountain region of Uttaranchal. As will be seen in later sections, such inequalities significantly influence the livelihood strategies of rural households.

Table 4.1
Features of Sample Households

Household group	Households (%)	Population (%)	Population in age-group,15-59 years	Workers (%)	Per worker average number of occupations	Migrants (%)	Return migrants (%)
Land class (in acres)							
Landless	9.52	7.97	67.34	48.74	1.35	6.03	1.51
Upto 0.5	36.84	33.99	57.48	55.59	1.62	11.30	3.89
0.5 to 1.5	32.08	32.99	61.41	55.22	1.55	15.90	4.73
1.5 to 2.5	12.78	13.77	62.79	57.85	1.57	15.78	4.94
2.5 to 5.0	8.02	10.21	56.47	58.04	1.60	27.33	4.31
>5.0	0.75	1.08	59.26	51.85	1.50	7.41	
Caste							
Brahmin	20.55	20.86	58.73	52.98	1.45	28.01	5.18
Rajput	38.85	38.99	61.81	57.70	1.50	14.20	5.34
OBC	6.77	8.41	53.33	56.19	1.73	7.76	0.95
SC	29.82	28.26	61.47	53.26	1.61	8.24	2.83
ST	4.01	3.48	57.47	60.92	2.02	1.15	2.30
Occupation of the head of the household							
cultivator	21.55	20.10	61.95	64.34	1.66	13.35	4.38
casual	20.30	18.29	56.24	52.08	1.81	4.57	1.97
petty job	10.53	11.01	58.18	50.18	1.42	20.95	1.45
white collor	10.03	10.37	67.95	56.37	1.32	23.94	1.93
petty trade &	9.52	10.13	58.10	52.17	1.65	4.74	4.35
other self	5.51	5.76	58.33	56.94	1.65	22.49	5.56
non worker	22.56	24.34	60.69	53.62	1.37	18.45	7.24
Distance from urban centers							
Peri-urban	29.82	27.98	61.95	50.64	1.50	10.44	1.72
Semi-interior	35.09	36.35	59.80	59.03	1.65	13.34	5.95
Interior	35.09	35.67	59.26	55.56	1.52	19.59	4.15
Number of occupations							
1	20.55	16.37	57.21	44.01	1.68	6.74	3.67
2	51.13	48.48	60.12	55.24	1.53	15.21	4.05
3	22.31	26.18	61.77	61.16	1.59	16.64	5.05
More than3	6.02	8.97	61.61	60.71	1.52	21.99	2.68
Degree of diversification							
Nil	39.08	37.23	60.32	54.73	1.48	20.55	4.95
Upto 25%	32.61	31.14	60.03	57.97	1.56	14.18	5.27
25 to 50 %	11.86	10.37	59.46	55.21	1.68	3.47	2.32
Above 50%	16.44	14.97	59.36	55.35	1.73	11.87	1.87
Total	100.00	100.00	60.21	55.44	1.57	14.83	4.12
Number	399	2498					

Caste-wise, upper caste households predominate the sample as they account for nearly 60 per cent of the sample households—constituting 38.9 per cent Rajputs and 20.6 per cent Brahmins. SCs, STs and OBCs constitute 29.8 per cent, 16 per cent and 6.8 per cent sample households, respectively (Table 4.1).

In terms of the 'occupation of the head of household' more than one-fifth (21.6 per cent) households are headed by cultivators, 20.3 per cent by casual labour; 20.5 per cent by service workers; and 15 per cent by other self-employed.

A predominant feature of the sample households is the multiplicity of economic activities pursued by them: 80 per cent among them pursue more than one type of activity and about 28 per cent pursue even more than three activities either in their primary or subsidiary capacity. This speaks for the inability of a single source of livelihood to provide adequate income to the household. According to the criterion of distance from the urban/rural town, nearly 30 per cent sample households are peri-urban (Table 4.1).

A large majority of the sample households practice traditional cereal-based farming and about one-fourth of them have been able to diversify moderately into fruits and vegetables cultivation. As will be seen later in Chapters VII and VIII, diversification in favour of commercial farming has significantly improved the earnings of households as well as restricted the magnitude of out-migration.

II. DEMOGRAPHIC FEATURES

1. Average Size of Household

The average size of household is 6.3 persons, which varies significantly across various categories of households. For example, it is highest at 9 persons among the small landholding households and lowest at 5 persons among the landless households. The positive relation of household size with the land size is a well established phenomenon in most of the Indian studies.

2. Population in Working Age-group

More than 60 per cent sample population is in the working age-group, 15-59 years. There is no significant difference in the proportion of population in the working age-group across the various groups of households (Table 4.1). Workers constitute 55.4 per cent of the sample population. However, the proportion of workers significantly varies across the households groups (Table 4.1). For example, the percentage of workers in population increases with the increase in the landsize class. Similarly, higher work-participation also means higher number of occupations which a household undertakes (Table 4.1).

Higher proportion of workers in sample population is also characterized with the prevalence of multiple activities, which a worker undertakes to support his household's livelihoods. It can be seen in Table 4.1 that a worker among the sample household undertakes nearly two occupations/activities.

3. Out-migrants

Out-migration[3] is an important feature of population in the mountain region of Uttaranchal (Khanka, 1988; Bora, 1996; Pande, 1996), and that too of a long duration (more than 9 months) in most cases. This is unlike the circular and/or short duration migration that has been commonly observed in most of the studies on rural migration (see for instance de Hann and Rogaly, 2002; Srivastava, 1998). It is important to mention here that incidence of migration in the mountain region of Uttaranchal varies considerably in various empirical studies—from as high as 24 per cent (Bora, 1996) to 6.7 per cent (Pande, 1996). This is obviously due to the different conceptual treatment of the out-migrants. The present study treats out-migration in purely economic sense. It considers out-migrants to be those household members who migrate for employment and education. It also includes those household members who have migrated along with an employed migrant worker. As is seen in Table 4.1, the migrant population constitutes about 14 per cent of the sample population, the percentage varying widely across various types of households. For example, the percentage of migrant population

[3] Here out-migration is treated purely an economic phenomenon and thus excludes migration due to marriage, sickness, etc.

is far above the sample average among households belonging to upper castes, lower income groups, perusing multiple occupations and those located in interior areas. As against this, the percentage of out-migrant population is the least (less than 6 per cent) among landless, lower castes and agriculturally developed households.

Like the out-migrants, return migrants also constitute a substantial proportion (4.1 per cent) of the sample population. Their percentage distribution across castes and land class categories also follows the pattern similar to that observed in the case of out-migrant population. Here, return migrants are those persons who migrated out of their village for their livelihood for a long duration (more than five years) and thereafter returned to the village due to a variety of reasons.

4. Sex Ratio

Population Census reports most favourable sex ratio (females per 1000 males) for the mountain region of Uttaranchal (see Table 3.2 in Chapter III). For the present sample population too, the sex ratio is 1048 females per thousand males if we exclude the out-migrant population. But by including the migrant population, the sex ratio turns out to be 890, which is definitely low (Table 4.2). The sex ratio is highest (1189) in the age group, 15-29 years, according to the first criterion. Till the working age i.e. 59 years, the sex ratio remains high (though it decreases) and then declines steeply in the age group, 60 years and above. Thus, a high rate of male out-migration in the working age-group, 15-59 years coupled with low return migration and almost negligible in-migration in the sample villages is mainly responsible for the favourable sex ratio. Thus, it is an economic rather than a demographic phenomenon.

The analysis of sex ratio across caste-groups shows an expected pattern, i.e. it is adverse among vulnerable groups like SCs and STs. A similar feature also emerges from the 1991 Population Census. The reasons are two-fold: first, the overall rate of out-migration among SCs and STs is low and, secondly, the prevalence of malnutrition among females belonging to these two caste-groups leading to high mortality rates in their reproductive age group.

Table 4.2
Sex Ratio

Population group	Including out-migrant population	Excluding out-migrant population
Age-group		
0-14	919	944
15-29	846	1189
30-59	908	1130
60 and above	880	917
Caste-group		
Brahmin	881	1130
Rajput	929	1119
OBC	1019	1082
SC	822	921
ST	812	833
Total	890	1044

5. Age Structure of Population

The age structure of sample population (Table 4.3) shows that nearly one-third (32.3 per cent) of the sample population is in the age group, 0-14 years. Youth (15-29 years) also constitute 31.3 per cent of the sample population. The old age (60 and above) population constitutes only 7.5 per cent of the sample population. Thus, about 60 per cent of the sample population is in the working age group of 15-59 years.

Table 4.3
Age Structure of Population (per cent)

Age group (years)	Male	Female	Person
0-14	31.77	32.83	32.26
15-29	32.00	30.44	31.27
30-59	28.67	28.25	28.94
60 & above	7.56	7.48	7.53
Total	100.00 (1322)	100.00 (1176)	100.00 (2498)

Note: Figures in brackets are absolute numbers.

6. Marital Status

The population can be categorised according to marital status as: married, unmarried and others. The last category includes those persons who are widows, widowers, divorced or separated. In all, about 43 per cent of the sample population is married, 5.4 per cent are widows/widowers and remaining

unmarried (Table 4.4). As between the two sexes, the percentage of married and widows is comparatively higher among females than the males. Caste-wise, the percentage of widow/widower population is higher among SCs and STs. A higher proportion of widows in female population also shows their precarious position in the family and society as well. Similarly, the very high percentage (45 per cent) of widow/widower population in the age-group, 60 years and above, is a clear indication of the high vulnerability of the aged population to emotional as well economic shocks. There are frequent instances of ill treatment being given to these people through their own kins. The reasons for this would require a separate study.

Child marriage is non-existent in the sample households, which was quite prevalent at least 25-30 years ago. This change mainly came through tremendous improvements in the literacy levels of females, particularly after 1970s and resultant awareness among the households against the child marriage.

Table 4.4
Marital Status of Sample Population

Population group	Marital status			Total
	Unmarried	Married	Widow/widower	
Sex				
Male	55.52	41.15	3.33	100.00
Female	47.28	44.90	7.82	100.00
Age-group				
Upto 14	100.00	-	-	100.00
15 – 29	59.80	40.20	-	100.00
30 – 59	2.21	90.59	7.19	100.00
60 and above	0.53	54.79	44.68	100.00
Total	51.64	42.91	5.44	100.00

7. Literacy Rate

Attaining the higher literacy level over the last two-three decades has been a remarkable phenomenon of the mountain region of Uttaranchal. There has been considerable progress in the educational attainment of the population in the hill region of Uttaranchal, particularly after the mid-1980s as is seen earlier in Chapter III. This was possible through the rapid expansion of educational

facilities in Uttaranchal over the years and a growing concern among the mountain population for the education of their children, which they consider imperative for securing stable livelihoods outside their villages.

Likewise, given the high literacy rate (71.2 per cent) in the rural areas of mountain districts of Uttaranchal as per the 2001 Population Census, the percentage of literate population in the sample population (6 years and above) is nearly 80 per cent. Sex-wise, more than 90 per cent of males and two-thirds of females are literate among the sample population (Table 4.5).

Age-specific literacy rates among the sample population show an interesting pattern. In the age group, 6-14 years literacy rate is very high (about 95 per cent) and most importantly there is almost no difference in literacy levels between boys and girls. Also, among the youth, (15-29 years) literacy rate is at about 90 per cent—95.7 per cent for males and 82.7 per cent for females, thereby indicating a comparatively a low gender disparity. As against this, the literacy rate is abysmally low among the females in the higher age groups, being 43.6 per cent in the age group, 30-59 years and merely 15.9 per cent among the old age females. On the other hand, literacy rate among males in these two age groups is 85.8 per cent and 67 per cent respectively (Table 4.5). Thus, the gender disparity in literacy rate is more pronounced in these two age groups.

Table 4.5
Age-specific Literacy Rate (6 years and above)

	Age-group (years)				
Sex	Upto 14	14 to 29	30 to 59	60 and above	Total
Male	95.49	95.74	85.75	67.00	90.08
Female	95.40	82.68	43.60	15.91	66.86
Person	95.45	89.76	65.70	43.09	79.32

Enrolment of Children

The expansion of primary education facilities in the mountain districts of Uttaranchal over the years has considerably improved the enrolment of children in the age group, 6-14 years. Nearly 90 per cent children in the age-group 6-14 years are enrolled in schools (Table 4.6), the enrolment rates being far better

than in many other states in the country (PROBE, 1998). The comparatively lower enrolment in the age-group 6-10 years as compared to the next age-group, i.e., 11-14 years, points to the phenomenon of late school enrolment in the sample villages, which is mainly associated with the tough terrain forcing children to travel some distance to reach their school, which could even exceed two kilometers.

Nearly 4 per cent children in the age group, 6-14 years are dropouts. The percentage of drop out among girl children belonging to age group 11-14 years is almost double as compared to their male counterparts. This also speaks of the gender bias against girls' education that prevails in the region (Table 4.6).

Table 4.6

Schooling Status of Children (6-14 years)

Age-group	Sex	Never enrolled	Enrolled but left	Attending school	Total
6-10	Male	5.84	2.00	92.16	100.00
	Female	6.92	2.97	90.11	100.00
11-14	Male	4.80	3.82	91.38	100.00
	Female	6.17	6.80	87.03	100.00
6-14	Male	5.34	2.83	91.82	100.00
	Female	6.64	4.80	88.56	100.00
	Total	5.94	3.74	90.32	100.00

III. ACCESS TO LIVELIHOOD ASSETS

It is now abundantly clear that the overall economic well-being of a household significantly depends on its access to physical as well as human resources both within and/or outside the household.[4] In fact, it is the resource endowment of a household, which shapes livelihood strategies that a household adopts in order to maximize its income. The resource endowment is also significantly determined by a complex set of socio-economic features of a household, and various kinds of formal/informal institutions. Depending upon the asset base and institutional support, it may be a mere survival strategy for same households

[4] For detailed literature on this fascinating subject, see Scoones, 1998; Ellis, 1998, 2000; Unni, 2001.

whereas for others it may be income enhancing strategy with reduced risks. Given this background, it will be worth to analyse the resource endowment among various categories of sample households.

1. Land Holdings

Nearly one-tenth of the sample households are landless and more than 80 per cent of households belong to the marginal land holding class, since they own less than 2.5 acres of land.[5] As many as 36.8 per cent households own less than half acre of land or about 10 *nalis*, and thus can be termed as ultra-marginal or near to landless households, while only 8 per cent own 2.5 to 5.0 acres of land. Because of the preponderance of marginal and small land holdings, the average size of land holdings per household is just 1.15 acres (Table 4.7). Moreover, the land holdings are undulated, fragmented and scattered and each year monsoon rains sweep away many landholdings, making the task of agriculture increasingly difficult and labour time (both human and animal) consuming. Added to this is the fact that mountain agriculture is largely rainfed as less than 20 per cent of cultivated area is irrigated, and thus is subject to the vicissitudes of the climate. This is a cruel dilemma staring hill people on the face.

Table 4.7
Percentage Distribution of Households by their Land Class Category

Caste	Land class (in acre)						
	Landless	Upto 0.5	0.5 to 1.5	1.5 to 2.5	2.5 to 5.0	>5.0	Total
Brahmin	3.66	23.17	40.24	17.07	14.63	1.22	100.00
Rajput	0.00	30.97	37.42	17.42	12.90	1.29	100.00
OBC	0.00	44.44	44.44	11.11	0.00	0.00	100.00
SC	28.57	49.58	17.65	4.20	0.00	0.00	100.00
ST	6.25	56.25	25.00	12.50	0.00	0.00	100.00
Total	9.52	36.84	32.08	12.78	8.02	0.75	100.00
Percentage share of land	-	11.72	29.37	24.02	29.99	4.89	100.00

Apart from the dominance of marginal land holdings in the sample households there also exists iniquitous land distribution: at the one extreme, 37 per cent households possess only 11.7 per cent of land; while at another

extreme, approximately 9 per cent of households possess 34 per cent of land (Table 4.7).

The inequality in land ownership is more discernible across caste groups. The percentage of landless households is highest (29 per cent) among SC households with nearly half the SC households owning less than 0.5 acre of landholdings. Upper castes households like Brahmin and Rajput are relatively better placed as more than 30 per cent among them own land more than 1.5 acre (Table 4.7). Not a single sample household is landless among the Rajputs and OBCs. Overall, the average size of landholdings per household among Brahmins is highest, i.e. 1.52 acre, followed by Rajputs with 1.40 acre and the lowest at 0.55 acre among SCs. The land holdings are also marked with an extremely low area irrigated—only about 22 per cent of the cultivated area is irrigated. In brief, land as a source for livelihood is extremely limited for an overwhelmingly large majority of sample households, which is marked with undiluted surface, scatterdness, being mainly rainfed and thus causing uncertainties in production along with abysmally low productivity.

2. Livestock

Livestock plays an important role in the rural economy, particularly in the mountain districts of Uttaranchal. Besides providing bullock power for agriculture, it also provides manure, milk, meat and eggs. It especially helps the marginal farmers, landless labourers and rural women by providing them with supplementary employment and income for their subsistence. It also has the potential to develop a strong poultry, meat and animal feed processing industry. The ownership of livestock as a productive asset inter alia depends on factors like land size, number of working persons in a household (particularly women), access to common property resources and nearness to forest resources. Given the importance of livestock in a rural household economy, we have worked out the total value of this asset for each household, which is presented in Table 4.8.

[5] One hectare of land is equal to 2.47 acre or 51 *nali* in local vernacular unit.

Table 4.8
Value of Livestock Assets per Household

Household group	Value (Rs.)				Per cent share		
	Milch	Draught	Other	Total livestock	Milch	Draught	Other
Land class (in acres)							
Landless	1620	310	540	2470	65.59	12.55	21.86
Upto 0.5	6437	1594	2157	10188	63.18	15.65	21.17
0.5 to 1.5	6950	2418	2873	12241	56.78	19.75	23.47
1.5 to 2.5	7589	4820	3783	16192	46.87	29.77	23.36
2.5 to 5.0	9672	5625	3050	18347	52.72	30.66	16.62
>5.0	9831	6082	7720	23633	41.60	25.74	32.67
Distance from urban center							
Peri-urban	8767	2010	4031	14808	59.20	13.57	27.22
Semi-interior	6248	3785	2255	12288	50.85	30.80	18.35
Interior	4100	3244	2639	9983	41.07	32.50	26.43
Total	6647	2424	2563	11634	57.13	20.84	22.03

The distribution of livestock asset is consistent with the pattern of land ownership, i.e., more a household owns land, the more is the number/value of livestock. Given the adoption of traditional farming practices on predominantly marginal land holdings most households have to maintain draught animals on a relatively higher scale possibly because they support crop production thus ensuring their subsistence. At the same time the availability of the larger amount of land facilitates the availability of fodder to sustain a larger number of animals. Discussions with the respondents in sample villages, however, indicate that over the years, households in the mountain areas of Uttaranchal have significantly reduced the intensive livestock, particularly of draught animals due to shortages of fodder and the uneconomical nature of crop production. Instead milch animals are more important for landless and marginal landholding households, particularly in peri-urban areas who invest in these animals due to the local demand for milk. The use of draught animals is proportionately greater in interior villages with their share tending to increase with the increasing land size. Other livestock like goats and sheep are equally important across the various groups of households.

A few observations about the quality of livestock are worth to mention. Cows, bullocks and buffaloes predominate the livestock among the sample households. Nearly one-fourth livestock consists of goats and another 5 per cent as sheep. More than 95 per cent cattles are of local breed. Average daily milk yield per milching cow is very low at 1.4 kg and that for buffalo 3.1 kg. Due to low milk yield livestock is mainly a subsistence activity for majority of households.

3. Other Productive Assets

The most common productive assets are traditional farm implements like wooden plough, spade, sickle, axe, shovel, adze, rudder, etc., which almost every household owns. Though of low value, they have a positive relationship with the farm size. On the other hand, ownership of non-farm assets is mainly limited to the better-off households, which are very few in number. There are also some households among the landless and ultra marginal landholding households, which possess non-farm assets. They are mainly SCs who are engaged in caste-based occupations like iron smithy, basket weaving, tailoring, etc. Households in peri-urban villages, which possess relatively more land assets, also invested heavily in non-farm assets, which constitute nearly two-thirds of their productive assets (Table 4.9). It can be seen in the Table that both the value and proportion of non-farm assets is highest among the richest income group households. It is important to mention here that there are very few households who could invest in non-farm assets.

4. Educational Level

While attaining higher literacy levels is important, it is equally important for the population groups to achieve higher educational levels. There is sufficient evidence to suggest that the level of educational attainment of the labour force acts as an important determinant in enhancing its employability and level of earnings (see ILO, 1998). Due to lower educational attainment coupled with the dearth of facilities for job-oriented education and training, most of the labour force is forced to join low paid menial jobs. This aspect is elaborated in Chapter V.

Table 4.9

Value of Farm and Non-farm Assets per Household

Household group	Value (Rs.)				Per cent share			
	Livestock	Farm implements	Non-farm assets	Total	Livestock	Farm implements	Total farm	Non-farm assets
Land class (in acres)								
Landless	2470	251	189	2910	84.86	8.64	93.5	6.5
Upto 0.5	10188	727	946	11861	85.9	6.13	92.03	7.98
0.5 to 1.5	12241	1087	6019	19347	63.27	5.62	68.89	31.11
1.5 to 2.5	16192	1419	47994	65606	24.68	2.16	26.84	73.16
2.5 to 5.0	18347	1712	1494	21552	85.13	7.94	93.07	6.93
>5.0	23633	2433	0	26067	90.66	9.34	100	0
Distance from urban center								
Peri-urban	14808	597	24434	37839	33.85	1.58	35.43	64.57
Semi-interior	12288	1140	746	14174	86.69	8.04	94.73	5.26
Interior	9983	1138	2859	13979	71.41	8.14	79.55	20.45
Per capita income class								
Less than 2500	5686	886	363	6935	81.99	12.78	94.77	5.23
2500 - 5000	7726	828	555	9109	84.82	9.09	93.91	6.09
5000 - 7500	11604	1009	423	13036	89.01	7.74	96.75	3.25
7500 - 12500	11592	1048	2573	15213	87.73	6.89	94.62	16.91
12500 - 22500	19773	1197	9205	30174	65.53	3.97	69.5	30.5
22500 and above	27456	1199	99603	128258	21.41	0.93	22.34	77.66
Total	11634	977	8552	21164	54.97	4.62	59.59	40.41

Note: Non-farm assets include sewing machine, oil crusher, flour/rice/oil mill (power driven), knitting machine, welding machine, bus, jeep, vans, shops, photocopy machine, audio/video camera for commercial use, computer, typewriter, phone/fax, sound system, band, utensils for commercial uses, etc.

Despite the high literacy rate a substantially high percentage (nearly 55 per cent) of the sample population have been educated upto middle standard level only— about 17 per cent are semi-literate (below primary), 19.7 per cent have been educated upto primary level and 18.2 per cent upto middle level, so that only the remaining 24.4 per cent of the population is, educated, upto high school and above. A very small percentage (1.1 per cent) of the sample population possess technical diploma/degree (Table 4.10).

Table 4.10
Educational Level of Population (6 years and above)

Sex	Educational level								
	Illiterate	Below primary	Primary	Middle	High school	Higher secondary	Graduate & above	Technical degree/ diploma	Total
Male	9.92	16.81	18.15	21.68	16.72	9.58	5.38	1.76	100
Female	33.14	17.30	21.48	14.19	6.41	4.28	2.82	0.39	100
Person	20.68	17.03	19.68	18.21	11.94	7.12	4.19	1.13	100

The literacy rate and levels of educational attainment vary significantly across various types of household groups. This is discussed in the following paragraphs.

The percentage of illiterate population is almost double among SC population (26.6 per cent) as compared to the lowest 13.7 per cent among Brahmins. In the case of females, the illiteracy rate is highest at 43.8 per cent among STs, followed 38.6 per cent among OBCs, 37.6 per cent among SCs, and comparatively lower among Rajputs and Brahmins (32.4 per cent and 24.8 per cent, respectively). Both the SCs and STs are educationally disadvantageous as only 14.2 per cent and 15.8 per cent among them are educated (high school and above), respectively. On the other hand, more than 30 per cent population is educated among the upper castes. Similarly, the percentage of population with technical qualification is highest among the upper castes (Annexure Table 4.1).

The type of occupation of the head of household is also a significant factor in determining the educational attainment of the sample population. As is evident from Annexure Table 4.2, the level of illiteracy (in percentage terms) is highest (nearly 30 per cent) in the households headed by casual wage labour—about 42 per cent of females and 18.6 per cent of males are illiterate in such households. The next highest percentage of illiterate population (22.8 per cent) is found in households headed by cultivators. In contrast, the percentage of illiterate population is lowest among the households headed by white-collar workers as well as those headed by other self-employed in non-agriculture (less than 16 per cent in each). The percentage of educated population is lowest at 7.5 per cent among the casual wage labour households and among the households headed

by cultivators (20 per cent) as compared to the sample average of 25 per cent. Apart from these two groups of households, the rest of the households have not only higher literacy rate but also a sizeable percentage of educated population. Among households headed by white-collar workers those with the highest educated population (40 per cent) includes 8 per cent graduates and 6 per cent technical degree/diploma holders. Of these households those headed by self-employed in non-agriculture, have a sizeable educated population (above 30 per cent). Moreover, a similar pattern prevails in regard to the proportion of educated females across the household groups. This clearly brings out the positive correlation between the occupation of head of households and educational attainment of population, which in turn determines the employability and probability of the higher income of population.

Gender Bias

The gender bias is acute in the sample population as one-third of female population is illiterate as compared to about one-tenth of males. The higher incidence of illiteracy among women leads to a further widening of gender disparity in educational attainment. The gender disparity tends to widen with the increasing level of educational attainment among males and females, as is seen in Table 4.11. It is interesting to note that gender disparity is comparatively lower at primary school, and tends to increase sharply (in terms of decreasing proportion of girls to boys) at higher secondary level of education. However, it tends to decrease at the graduation level. This suggests an increasing retention rate of girls in higher education, on the one hand, and increasing number of boys discontinuing their education after completing high school or higher secondary school examinations in search of their livelihood, on the other. However, gender disparity is more acute between males and females in terms of their percentage share in higher education—only 13.9 per cent of women possess high school and above qualification as compared to 33.6 per cent that for males. Gender disparity differs across castes as well. Among the Brahmins there is less gender disparity as compared to other caste groups like OBCs and STs. In the case of

SCs, the gender disparity tends to decline with the increasing level of education (Table 4.11). This suggests that those SC households who are able to send their children to schools (though in a very small proportion) tend to retain them irrespective of their sex. This also provides them the opportunity for availing the benefits of scholarships and job reservations.

Table 4.11

Gender Disparity* in Education by Caste

Caste	At least primary	At least middle	At least high school	At least Hr. secondary	At least graduate
Brahmin	0.78	0.59	0.43	0.37	0.36
Rajput	0.67	0.49	0.42	0.40	0.40
OBC	0.48	0.36	0.20	0.41	0.15
SC	0.65	0.52	0.54	0.91	1.03
ST	0.69	0.44	Absolute	Absolute	Absolute
All	0.67	0.51	0.36	0.26	0.44

Note: * Ratio of females to males.

Thus, policy support needs to be provided to ensure the higher enrollment of females and other disadvantaged groups like SCs and STs in the educational institutions with more focus on quality education and training. This would finally empower them to compete in the labour market in their search for a better livelihood.

IV. HOUSEHOLD BORROWINGS

Dependence on borrowings is yet another important aspect of rural economic life. A number of significant features are shown in Table 4.12. First, the proportion of borrowing households varies significantly among the different household groups, e.g. among SC and ST households nearly 45 per cent borrow whereas among OBC households, only 15 per cent do so. Similarly, the proportion of borrowing households is high among lower and higher income group households. Second, as expected, the amount borrowed per household generally increases as one moves up the scale from lowest income group. Third, public agencies (banks—nationalised, cooperative and rural, and development programmes of government) account for a preponderant share of loans among all categories of households. However, in the case of landless and lower income group

households, the share of borrowing from moneylenders account for a comparatively higher share, although the percentage does not exceed 20.

Table 4.12
Broad Features of Household Borrowings

Household group	Percentage of borrowing households	Average loan per borrowing households (Rs.)	Source of loan (per cent)			Purpose of loan (per cent)	
			Public agencies	Money lenders	Friends, relatives and others	Productive	Consumption
Land class (in acres)							
Landless	50.00	15926	85.71	14.29		56.71	43.29
Upto 0.5	31.29	13967	73.47	8.12	18.41	71.63	28.37
0.5 to 1.5	25.00	10475	58.33	2.78	38.89	69.44	30.56
1.5 to 2.5	33.33	45247	68.42	10.53	21.05	82.35	17.65
2.5 to 5.0	25.00	13437	55.56		44.44	55.56	44.44
Caste							
Brahmin	30.49	10460	42.86	3.57	53.57	65.57	34.43
Rajput	20.65	14231	62.86	2.86	34.29	69.70	30.30
OBC	14.81	66750	20.00	20.00	60.00	80.00	20.00
SC	45.38	19474	76.21	20.24	3.45	59.66	40.34
ST	43.75	17357	100.00			100.00	
Total	30.58	17680	69.40	6.72	23.88	77.27	22.73

It is important to note that public agencies lend money for production purposes, mostly under various rural development programmes. Accordingly, more than three-fourths of the amount of borrowing is used for productive purposes. Due to the vulnerable conditions of the landless, SCs and the economically weaker households, a fairly high proportion (more than 40 per cent) of the amount borrowed by them is used for meeting their consumption needs. The tendency to use borrowed money for productive uses is highest among the higher income group households as well as those located nearer urban centres as the latter has the potential for fetching optimum returns.

V. CONCLUSION

The physical resource endowments and capabilities (which mainly include education and skills endowments) of the households mainly determine their livelihood patterns. As in other parts of the country, the poor in the mountain areas of Uttaranchal generally lack these assets. However, what makes rural

households in the mountain regions different from other poor regions are their inaccessibility, fragility and marginality. Only 12 per cent of the geographical area in these regions is available for cultivation as seen in Chapter II. Our data shows that apart from preponderance of marginal landholdings, more than 36 per cent households own even less than 0.5 acre land and another one-tenth households are landless. The density of population on per acre cultivated land is very high. Most of the cultivated land is scattered, rainfed and devoid of any modern technological application.

Like land, the availability of other assets like livestock, farm and non-farm assets is extremely limited. Livestock mainly consists of local breed of milch, draught and other animals like goats and sheep. This is mainly practiced to support the crop production and augment the milk requirements of the households. Poor households tend to retain a proportionately larger number of milch animals to augment their livelihoods. In peri-urban villages, value of livestock per household is higher as compared to interior villages. Though investment in milch cattle, which is mainly demand driven is relatively higher in these villages because of the availability of a supportive infrastructures. The quality of milch animals, however, is poor resulting in very low milk yields. Due to limited land, the shortages of fodder poses a serious problem for most of the households as they have to travel longer distances to collect fodder from reserve forests. This also discourages households from maintaining a large number of milch animals. There is a need to initiate policies aimed at providing cheaper fodder through PDS, effecting improvement in the breed of milch animals and development of infrastructure for procurement of milk.

An overwhelmingly large number of households do not own any non-farm implements as there is hardly any manufacturing and processing activities in the mountain villages. Here again, only well-off households and those located in peri-urban areas have highest amount of investment on non-farm assets.

As against the poor physical asset base of rural households there is a high levels of literacy (about 80 per cent) among the sample population with nearly one-fourth of the population being educated (high school and above). The higher

value of relative index of educational attainment, as shown in Chapter III, also shows that Uttaranchal has the advantage of the availability of educated persons per thousand of population. It merits mention here that the major strategy of rural households has been to prepare their labour force, mainly males to seek their livelihood outside the hill agriculture by enhancing their educational attainment, as dependence on traditional agriculture tends to increase their vulnerability to production risks. In this context, the role of female is generally perceived to support household cultivation. This has adversely affected the educational capabilities of females: only 14 per cent among them are educated as against more than 33 per cent of their male counterparts. It is also seen that educational attainment of the population is significantly influenced by their socio-economic characteristics. The high level of illiteracy coupled with lowest percentage of educated among SCs, casual wage labour and ultra-marginal land owing households, in fact, has acted as both the cause and effect of their impoverished income levels.

The percentage of population with technical education is even less than 1.5 per cent in the sample population, the most disadvantaged being women and low income group households. It will be seen in later chapters that those who lagged behind in the enhancement of educational attainment of their population could hardly diversify their livelihoods either through taking up more remunerative employment or through migrating out for seeking employment, thus resulting in their overall low earnings.

To conclude, poor resource base for livelihoods with least application of modern technical know-how is a common feature for rural households in mountain districts of Uttaranchal. The uncertainties in land based production activities along with poor productivity levels have forced most of the rural households to resort to multiple activities.

Annexure Table 4.1

Educational Level of Sample Population by Caste Groups (%)

Caste-group	Sex	Level of education (6 years and above)								Total
		Illiterate	Below primary	Primary	Middle	High school	Higher secondary	Graduate & above	Technical degree/ diploma	
Brahmin	Male	4.08	16.73	15.51	18.78	20.00	14.29	5.71	4.90	100.00
	Female	24.77	13.08	24.77	17.76	10.28	5.61	3.27	0.47	100.00
	Total	13.73	15.03	19.83	18.30	15.47	10.24	4.58	2.83	100.00
Rajput	Male	8.33	14.47	15.35	23.03	18.64	11.62	7.24	1.32	100.00
	Female	32.45	16.22	21.07	14.04	8.23	4.60	3.39	0.00	100.00
	Total	19.79	15.30	18.07	18.76	13.69	8.29	5.41	0.69	100.00
OBC	Male	5.21	16.67	17.71	21.88	25.00	6.25	7.29	0.00	100.00
	Female	38.64	23.86	15.91	13.64	2.27	4.55	1.14	0.00	100.00
	Total	21.20	20.11	16.85	17.93	14.13	5.43	4.35	0.00	100.00
SC	Male	17.77	18.34	24.36	21.78	10.32	4.01	2.58	0.86	100.00
	Female	37.59	20.57	21.28	10.99	2.84	3.19	2.48	1.06	100.00
	Total	26.62	19.33	22.98	16.96	6.97	3.65	2.54	0.95	100.00
ST	Male	6.82	29.55	13.64	22.73	11.36	13.64	2.27	0.00	100.00
	Female	43.75	12.50	21.88	21.88	0.00	0.00	0.00	0.00	100.00
	Total	22.37	22.37	17.11	22.37	6.58	7.89	1.32	0.00	100.00

Annexure Table 4.2

Educational Level of Sample Population by Occupation of Head of Household (%)

Occupation of head of household	Sex	Level of education (6 years and above)								Total
		Illiterate	Below primary	Primary	Middle	High school	Higher secondary	Graduate & above	Technical degree/ diploma	
Cultivator	Male	11.69	18.55	17.34	24.60	15.73	7.66	4.44	0.00	100.00
	Female	36.59	14.63	21.95	15.12	3.90	3.90	3.90	0.00	100.00
	Total	22.96	16.78	19.43	20.31	10.38	5.96	4.19	0.00	100.00
Casual labour	Male	18.60	24.19	27.91	20.93	5.58	2.33	0.47	0.00	100.00
	Female	41.71	23.53	19.79	8.56	4.81	0.00	1.60	0.00	100.00
	Total	29.35	23.88	24.13	15.17	5.22	1.24	1.00	0.00	100.00
Petty job	Male	6.56	20.49	16.39	18.03	22.95	9.02	4.10	2.46	100.00
	Female	30.25	17.65	27.73	14.29	4.20	3.36	2.52	0.00	100.00
	Total	18.26	19.09	21.99	16.18	13.69	6.22	3.32	1.24	100.00
White collar job	Male	3.10	9.30	11.63	17.05	18.60	17.83	12.40	10.08	100.00
	Female	29.91	16.82	17.76	18.69	5.61	7.48	2.80	0.93	100.00
	Total	15.25	12.71	14.41	17.80	12.71	13.14	8.05	5.93	100.00
Petty trade & business	Male	3.67	11.93	20.18	22.02	23.85	11.93	5.50	0.92	100.00
	Female	31.48	20.37	16.67	14.81	8.33	5.56	2.78	0.00	100.00
	Total	17.51	16.13	18.43	18.43	16.13	8.76	4.15	0.46	100.00
Other self employed	Male	4.48	17.91	16.42	19.40	16.42	14.93	8.96	1.49	100.00
	Female	29.09	12.73	23.64	18.18	5.45	5.45	5.45	0.00	100.00
	Total	15.57	15.57	19.67	18.85	11.48	10.66	7.38	0.82	100.00
Non worker	Male	10.00	13.33	15.00	23.67	19.67	11.00	6.33	1.00	100.00
	Female	28.23	14.52	22.58	14.52	10.48	6.05	2.42	1.21	100.00
	Total	18.25	13.87	18.43	19.53	15.51	8.76	4.56	1.09	100.00

CHAPTER V

EMPLOYMENT AND UNEMPLOYMENT

I. CHANGES IN THE PATTERN OF RURAL EMPLOYMENT

In recent years two kinds of changes have been observed in the pattern of rural employment in India. One relates to the structural change in the rural employment showing that there has been continuous shift of rural workforce from agriculture to non-agriculture sector. The concern has been that although, there has been structural shift in the rural employment over the years, the changes which are taking place have not been always positive. One the one hand, the rate of shift of workforce has not been in conformity with that of the shift in terms of contribution to GDP, and a huge proportion of shift in employment is taking place in favour of a few residual sectors, on the other. Second relates to the changes in the employment status, showing that there has been growing casualisation of the rural workforce at the cost of self-employed and regular salary/wage paid workers (see Papola, 1992; Bhalla, 1997; Sen, 1998; Chadha, 2002).

In rural India, there has been a steady shift of workforce from agriculture to non-agriculture till 1987-88—from 85.7 per cent in 1972-73 to 78.3 per cent in 1987-88. The shift actually halted between the period 1987-88 to 1993-94 with agriculture in particular reverting to its traditional role as the residual sector for rural workers, who have not been able to find more productive non-farm jobs, either in rural areas, or in cities (Bhalla, 1998). The situation has marginally changed in the late nineties with a shift away from agriculture to non-agriculture occupations—the share of agriculture in rural employment declined from 78.4 per cent in 1993-94 to 76.3 per cent in 1999-2000. In the case of male workers, there has been a steady shift in their employment from agriculture to non-agriculture as their share of non-farm employment increased from as low as 16.7 per cent in 1972-73 to 28.7 per cent in 1999-2000. The share of female workers in non-farm employment increased from 10.3 per cent in 1972-73 to 15.2 per

cent in 1987-88. Unfortunately, there has been hardly any shift from agriculture to non-agriculture sector in employment of female workers in the post - 1987 years (Chadha, 2002).

Another important feature is the acceleration in the process of casualisation of rural workforce in the 1990s, particularly among males—from 26.6 per cent in 1977-78 to 36.2 per cent in 1999-2000. The proportion of casual workers among females increased from 35 per cent in 1977-78 to 39.6 per cent during 1999-2000. This growing casualisation of labour, however, is not always viewed as an indicator of pauperisation of rural labour (see Papola, 1992, 1994) as it adds up to the flexibility in the workforce and at the same time may increase the overall earnings in casual wage works. Nevertheless, at least one thing is certain: the increase in the size of casual labour indicates a decline in the opportunity to be self-employed in agriculture and other household industries. This also indicates greater insecurity of contracts as well as uncertainty of finding employment (Sharma and Mamgain, 2001).

In Uttaranchal too, like the national trend, as seen in Chapter III, the share of agriculture in rural employment increased marginally from 82.3 per cent in 1987-88 to 83.2 per cent during the period 1993-1994 and thereafter marginally declining to 82.4 per cent during the period 1993-94 to 1999-2000. Yet it remains higher than the all-India average. The employment status of the rural workforce did not witness any significant change in the state as the share of self-employed declined marginally from 83.4 per cent during the year 1983 to 80.4 per cent during the period 1999-2000. Thus, the percentage of casual workers remained much lower at less than 12 per cent in the state as against more than 37 per cent in India, more so in the case of females. Unlike the national pattern, the share of female in casual wage employment increased more sharply in Uttaranchal during the 1990s—from mere 1.6 per cent in 1993-94 to 7.8 per cent in 1999-2000, whereas that for males increased marginally from 15.6 per cent to 16.3 per cent during the period. Overall, rural employment in Uttaranchal is yet to witness major structural changes. The over-dependence on agricultural sector as self-

employed by an overwhelmingly large proportion of rural workforce only shows their precarious employment situation within the rural areas of the state.

It needs to be mentioned here that though at the macro level there may not appear to be any structural changes in rural employment yet at the household level the process may be more dynamic. Rural households adopt various strategies including sending some of their members outside their villages for improving livelihoods. Their livelihood sources, which determine their income levels, are generally quite diverse and dispersed. This is generally not captured by both the Population Census and NSS data on employment. In this Chapter, which is based on the primary data, we will attempt to analyse the dynamics of employment and livelihood strategies of the rural labour force in the mountain region of Uttaranchal.

II. EMPLOYMENT AMONG SAMPLE HOUSEHOLDS

Before analysing the sample data on employment, a few points are in order. First, similar to NSSO, we have followed the time criteria for determining the principal and subsidiary activity status of a person. Accordingly, sample population has been categorised into workers and non-workers on the basis of their primary (main) and primary plus subsidiary activity. Second, we have broadly followed the NSS classification of employment under two broad industrial classifications i.e., agriculture and non-agriculture. Within each broad sector, we have classified the workforce according to three statuses of employment, i.e., self-employed, regular salaried and casual wage labour. This has been purposively done, as it provides a simple and manageable differentiation of main livelihood sectors and reflects similar categorisation of economic activity in the Indian context.[1] Third, since out-migration for employment is a dominant household strategy in the mountain areas of Uttaranchal, we have occasionally made a comparative analysis of the structure of employment under two sub-

[1] Similar categorisation is used by Lunjouw and Shariff (2000) to distinguish between income streams. It also reflects Fisher et al.'s (1997) emphasis on the importance of distinguishing between economic sector, location of employment and structure of the employer.

categories, namely, 'only non-migrant workers' and 'both non-migrant and migrant workers'.

1. Labour Force

According to primary activity status, 47.4 per cent of the sample population constitutes the labour force and more than 42.7 per cent as workforce. About nine per cent of the sample population also works in their subsidiary capacity, which increases the overall labour force participation (LFPR) to about 57 per cent. Gender-wise, 58 per cent of males and 56 per cent females are in the labour force according to their primary and secondary activity (Table 5.1).

Table 5.1

Labour Force and Workforce Participation Rate

	Principal activity			Principal and secondary activity		
	Person	Male	Female	Person	Male	Female
Including both non-migrant and migrant workers						
Labour force	47.44	51.44	42.94	56.89	57.94	55.70
Workforce	42.67	43.65	41.58	55.44	56.13	54.68
Unemployed*	10.04	15.15	3.17	2.53	3.13	1.83
Non workers	52.56	48.56	57.06	43.11	42.06	44.30
Total	100.00	100.00	100.00	100.00	100.00	100.00
Population (number)	2498	1322	1176	2498	1322	1176
Non-migrant workers						
Labour force	43.09	43.54	42.65	53.32	51.10	55.47
Workforce	37.93	34.48	41.28	51.76	48.99	54.44
Unemployed*	11.97	20.81	3.21	2.93	4.13	1.85
Non workers	56.91	56.46	57.35	46.68	48.90	44.53
Total	100.00	100.00	100.00	100.00	100.00	100.00
Population (number)	2307	1137	1170	2307	1137	1170

Note: *Unemployment rate with respect to labour force.

By excluding out-migrant workers, the LFPRs tends to decline steeply by about seven per cent points in the case of males and does not change for females. By doing this, it is important to mention here that LFPR in our sample data for non-migrant labour force becomes almost similar to those observed for rural Uttaranchal in the recent 55th NSS data on employment and unemployment (see Chapter III).

Non-workers, thus, constitute about 43 per cent of the sample population, which largely comprises of students, disabled and too old to work. The incidence of open unemployment is much higher among males at 3 per cent than females (1.8 per cent)—the issue that is analysed in later section.

The age specific LFPRs are presented in Table 5.2. According to primary plus secondary activity status, about 5 per cent of female children and 3 per cent of male children in the age group, 0-14 years are in the labour force. These children are largely involved in cultivation and animal husbandry and thus are assisting their parents. In the age group, 15-29 years, the LFPR among males is 76.4 per cent whereas that for females is 78.2 per cent. The high LFPRs among the sample population also show that in a subsistence economy like mountain villages in Uttaranchal every able-bodied persons has to engage himself to support household income.

Table 5.2
Age-specific Labour Force Participation Rate

Age-group	Principal activity status			Principal plus subsidiary status		
	Person	Male	Female	Person	Male	Female
Upto 14	0.74	0.24	1.30	4.09	3.10	5.18
15 - 29	66.71	68.32	64.80	77.21	76.36	78.21
30 - 59	81.88	91.29	71.51	93.50	97.10	89.53
60 and above	35.11	44.00	25.00	57.98	62.00	53.41
All age groups	47.44	51.44	42.94	56.89	57.94	55.70

Thus, a point, which needs to be reiterated, is that secondary data sources, such as Population Census and NSS, do not capture the total labour force participation of a household. This is more so in areas with high incidence of out-migration. In fact, due to this phenomenon, both NSSO and Population Census show consistently lower participation of males in rural Uttaranchal as compared to India.

2. Workforce Participation Rate

An important feature in the mountain region of Uttaranchal is the very high work participation rate (WPR) among its female population. About 55 per cent of the female population is in the workforce according to their primary plus secondary

activity status. The WPR among male population is marginally high at about 56 per cent. By excluding migrant workers, the WPRs turns to be much lower (49 per cent) for males as compared to their female counterparts (54.4 per cent) (Table 5.1).

The WPRs (principal plus subsidiary) significantly differ across various socio-economic groups. It is highest at 61 per cent among Scheduled Tribes—the female WPR being higher than their male counterparts—and lowest at 53 per cent among Brahmin and Scheduled Caste households (Table 5.3). In particular, it is lowest at 49.4 per cent among SC females. To some extent the low WPR among SC households can also be explained in terms of the faster decline in the caste-based occupations like basket weaving, attached labour, black smithy, etc. Also, due to their poor land base they are not able to retain the livestock for their livelihood, as this requires lot of fodder, which generally is collected from their fields apart from common property resources and forests. This keeps the WPR of their female population low.

Table 5.3
Work Participation Rate across Household Groups (UPSS)

Household group	Person	Male	Female
Caste			
Brahmin	52.98	54.15	51.64
Rajput	57.70	56.24	59.28
OBC	56.19	57.69	54.72
SC	53.26	56.44	49.37
ST	60.92	60.42	61.54
Land class (in acres)			
Landless	48.74	61.47	33.33
upto 0.5	55.59	56.21	54.93
0.5 to 1.5	55.22	55.16	55.28
1.5 to 2.5	57.85	57.30	58.49
2.5 to 5.0	58.04	53.19	64.04
>5.0	51.85	55.56	44.44
Total	55.44	56.13	54.68

Table 5.3 also reveals that WPR tends to increase with the increase in the land class size. This is true for females, as more female labour time is needed for cultivation, either in their primary or subsidiary capacity. The reverse is true in the

case of male WPR as it is the highest at 61.5 per cent among landless households. The highest WPR of males in landless and ultra marginal households is explainable since their labour is the only asset which they own—and in most of the cases it is unskilled.

3. Structure of Employment

Agriculture and allied activities are the main sources of livelihood for about three-fourths of the non-migrant workforce in the sample households. The remaining one-fourth of the workers are employed in the rural non-agricultural sector. Gender-wise, more than 96 per cent females are employed in the agriculture sector, which is the domain of female workers, as they alone constitute nearly 70 per cent of the workforce engaged in that sector (Table 5.4). On the other hand, male workers dominate rural non-agricultural sector, as they constitute more than 92 per cent of non-farm workers. In other words, this sector is the main source of livelihood for more than half of the male (non-migrant) workers as compared to nearly 4 per cent of female workers.

Table 5.4
Percentage Distribution of Workers by Broad Sector and Status of Employment

Sector/status	Including both non-migrant and migrant workers			Non-migrant workers		
	Person	Male	Female	Person	Male	Female
Agriculture and allied sector						
Self employed in agriculture	48.88	27.63	73.41	56.70	36.80	74.10
Self employed in allied activities	8.81	2.96	15.55	10.22	3.95	15.70
Agricultural wage labour	6.14	5.93	6.38	7.12	7.90	6.44
Sub-total (1-3)	63.83	36.52	95.33	74.04	48.65	96.23
Non-agricultural sector						
Self employed in non-agricultural activities	9.60	16.58	1.56	11.14	22.08	1.57
Regular Service	17.91	31.81	1.87	4.77	9.16	0.94
Casual wage labour	8.66	15.09	1.24	10.05	20.11	1.26
Sub-total (4-6)	36.17	63.48	4.67	25.96	51.35	3.77
Total	100.00	100.00	100.00	100.00	100.00	100.00
Workers	1385	742	643	1194	557	637

Note: *Principal plus subsidiary status workers.

With the inclusion of migrant workers, more than 63 per cent male workers are employed in the non-agricultural sector, which is not strictly restricted to rural areas but also extends to urban areas (Table 5.4). Since there is an insignificant number of migrant workers among females, their percentage share in the non-farm employment remains much less at 4.7 per cent. This kind of excessive polarization of employment between the two sexes has its own implications, which are discussed in the concluding section.

As can be seen in Table 5.4, rural non-farm employment mainly consists of self-employment in petty trade and business and casual wage employment, which employ about 11.1 per cent and 10 per cent of the non-migrant rural work force respectively. Another 5 per cent of the non-migrant rural workers are in regular salaried jobs.

The higher share of the rural non-agricultural sector in employment among the sample households is mainly due to government support for activities like petty trade and transport. Similarly, construction of roads, bridges, buildings and 'wage employment programmes' provided casual wage work to rural households. Also, with the improvement in household income, some economic activities have expanded in response to new demand for housing, masonry, carpentry, tailoring, grocery shops, etc, as is observed among the sample villages, which has also contributed the growth of rural non-farm self-employment as well as casual employment. At the same time, there has been a marked decline in traditional caste-based occupations like *tellis, luhars, rudiyas,* etc.

However, it needs to be clarified here that most of the rural non-farm jobs are not necessarily located within the boundaries of villages. A large proportion of these jobs are performed by workers who daily commute to nearby towns, semi-urban areas or *bajars*. Thus, it can be conclusively said that while labour market for males is widely diversified, it is almost non-existent for females, mostly due to severe mobility constraints posed by social barriers.

4. Employment Status of Workforce

More than three-fourths of the sample workforce (non-migrant) are self-employed, followed by 17 per cent as casual wage labour and remaining 5 per cent in regular salaried jobs. Again, there is a striking difference between the employment status of male and female workers. About 63 per cent of male workforce (41 per cent in agricultural sector and 22 per cent in non-agricultural sector) are self-employed as compared to as high as 91 per cent that for females (89.8 per cent in agricultural sector and 1.6 per cent in non-agricultural sector) (Table 5.4). Similarly, nearly one-tenth male workers are regular salaried employed as compared to only one per cent that for female workers. About 28 per cent male and 8 per cent female workers are casual labourers—a larger proportion of males being employed in non-agricultural casual wage works (Table 5.4).

However, it needs to be mentioned here that a sizeable 26.8 per cent of male workers (principal plus subsidiary) in the sample households are migrants and almost all among them are salaried employed. With their inclusion, the status of employment of the male workforce changes significantly—the proportion of salaried workers increases to 31.2 per cent and that for self-employed declines to 47 per cent (Table 5.4).

While looking into the pattern of employment, it can be conclusively inferred that males are generally seen as main source for cash income to a household, who are not restricted by their mobility constraints. Females on the other hand, though not regarded as principal bread earners, are intensively involved in supporting household livelihoods by their high participation in farm related activities.

One of the distinguishing features of rural workforce in mountain region of Uttaranchal relates to the comparatively low degree of casualisation of its workforce—which is more pronounced in the case of female workers in comparison to national average. This is clearly evident both in NSS and the present sample data. According to our sample data, casual workers consist of about 17 per cent of the non-migrant workers—28 per cent among male and 8

per cent among female workers. Similarly, NSS 55th round on Employment and Unemployment shows about one-tenth of the rural workforce in mountain region in Uttaranchal as casual labour—consisting of 14 per cent male and 6 per cent female workforce, respectively. The corresponding all-India figures are 36.2 per cent for males and about 40 per cent that for females. The low degree of casualisation is indicative of a situation of lack of alternate employment opportunities outside agriculture in the mountain region and greater dependence on agriculture despite their being almost zero marginal productivity therein; and male selective migration increasingly becoming a major channel for unleashing the burden of agriculture.

5. Structure of Employment by Household Groups

The structure of employment is significantly influenced by the socio-economic characteristics of the workers (Table 5.5). The structure differs significantly across the caste-groups, as a large share of upper caste workers is self-employed in agriculture and allied activities. At the other extreme, as high as about 40 per cent of workers among SCs are casual wage labourers. Similarly, the highest percentage of workers in salaried employment (at nearly 20 per cent) is among the upper castes in comparison to other castes, and lowest among the OBCs. This has been facilitated by the higher educational attainment of the upper castes in comparison to other castes. However, it is worthwhile to note that even in terms of percentage of workers in salaried jobs, as many as 16.8 per cent of SCs are in such jobs. The highest percentage of self-employed in trade and business is among the OBCs (36.4 per cent). Thus, the higher percentage of casual wage labour among the SCs also indicates the magnitude of their vulnerability to seasonal fluctuations in the availability of casual wage employment.

Table 5.5
Pattern of Employment by Household Groups
(Both non-migrant and migrant workers)

(Per cent)

Household group	Agriculture sector			Non-agriculture sector				Total
	Self employed in agriculture and allied activities	Agricultural wage labour	Sub-total	Self employed in non-agricultural activities	Regular service	Non-agricultural wage labour	Sub-total	
Land class (in acres)								
Landless	11.34	29.90	41.24	12.37	20.62	25.77	58.76	100.00
Upto 0.5	51.48	10.81	62.29	9.53	17.16	11.02	37.71	100.00
0.5 to 1.5	64.55	0.22	64.77	10.28	17.94	7.00	35.23	100.00
1.5 to 2.5	69.50	1.50	71.00	9.00	15.50	4.50	29.00	100.00
2.5 to 5.0	67.57	0.68	68.24	6.76	21.62	3.38	31.76	100.00
>5.0	78.57	0.00	78.57	7.14	14.29	0.00	21.43	100.00
Caste								
Brahmin	58.58	1.81	60.39	11.91	23.36	4.33	39.61	100.00
Rajput	70.46	1.78	72.23	4.62	18.90	4.26	27.78	100.00
OBC	53.39	0.85	54.24	36.44	8.47	0.85	45.76	100.00
SC	38.46	16.98	55.44	6.63	16.81	21.15	44.59	100.03
ST	60.38	9.43	69.81	11.32	11.32	7.55	30.19	100.00
Migrant households								
No	60.62	9.23	69.84	11.26	5.56	13.33	30.16	100.00
Yes	54.32	2.61	56.93	7.68	32.00	3.38	43.06	100.00
Distance from urban centers								
Peri-urban	41.24	9.60	50.85	21.19	15.25	12.71	49.15	100.00
Semi-interior	65.89	6.12	72.01	6.31	16.48	5.19	27.98	100.00
Interior	60.61	3.64	64.24	4.85	21.41	9.49	35.76	100.00
Total	57.71	6.12	63.83	9.58	17.92	8.67	36.17	100.00

Note: Some land owning households have given their land to landless households (mostly SCs) for cultivation without seeking any rent. Such 'landless cultivators' are however very few among the sample households.

The perceptions about occupations have changed over the years. For example, in the mountain region in Uttaranchal, earlier casual wage labour (*coolies*) was viewed degraded occupation by upper caste people like Rajputs and Brahmins (see Atinkinson, 1882, p. 259). Over the years, the quest for additional livelihoods have compelled a sizeable proportion of upper caste workers to join the rank of casual wage labour. Many youth belonging to upper

castes can be seen working as *coolies* in hill stations like Mussourie and Gaurikund en-route Kedarnath shrine. It is not surprising to find a few of the educated working as loaders.

The occupational structure is influenced to a great extent by the availability of land to the households. The higher the size of owned land, the higher is the proportion of self-employed workers in the agricultural sector. The reverse is true in the case of casual labour. In landless households, about 56 per cent workers are employed as casual wage labour. This emerges clearly in Table 5.5. Among the landless households nearly 11 per cent workers reported to be cultivators as they have leased in some land for cultivation. In a few instances, the permanent migrant households have given them land for cultivation without any terms. However, these households are also potential labour households as they do not have legal rights over their cultivating land and may be evicted at any point of time. There is no definite relationship between the land class size and salaried jobs, which is rather determined significantly by educational levels, skills and experience of the labour force.

The structure and type of employment is also influenced significantly by the location of villages in relation to market center. In peri-urban villages proportionately lower number of workers are engaged in agriculture as self-employed —41 per cent as against more than 66 per cent in the distantly located villages—and thus, a predominant share of workforce is engaged in non-farm employment. As seen in Table 5.5, more than one-fifth of the workforce is self-employed in petty trade and business in peri-urban villages, and another 22.3 per cent are working as casual wage labourers. As against this, in the interior villages, only 5 per cent of the workforce is self-employed in non-agricultural activities and nearly 13 per cent are in casual wage labour. Thus, villages located nearer to market centers have better access to non-farm job opportunities. In the interior villages, the proportion of workforce in salaried jobs is more than 20 per cent, which is comparatively higher than in the peri-urban villages. This is primarily due to the higher percentage of migrant workers in the interior villages.

Migration is also an important mode for effecting a change in the occupational structure of the workforce. As is seen in Table 5.5, in the households reporting migration, more than 30 per cent of the workers are in regular salaried occupations apart from nearly 54 per cent being self-employed in cultivation. In the case of non-migrant households, about 61 per cent workers are self-employed in cultivation and nearly one-fourth are working as casual wage labour. The percentage of workers self-employed in petty business is more than double (about 11.3 per cent) among non-migrant households than the migrant households.

6. Employment Pattern among Youth Workers

Youth (age-group 15-29 years) constitute nearly 39 per cent of the sample workers according to their principal activity. Their employment pattern is significantly different than the rest of the workforce, particularly in the case of youth male workers, whereas no striking difference is visible in the case of females. For example, nearly 70 per cent of youth male workers (non-migrants) are engaged in the non-farm jobs, whereas the corresponding figure for all male workers is 60 per cent. More than one-fourth of male youth workers are self-employed in petty trade and business. By including out-migrant youth workers, who constitute about 53.3 per cent of youth male workers, the percentage of youth in non-agricultural activities rises to about 85 per cent. As can be seen in Table 5.6, about 58 per cent of youth male workers are employed in regular salaried jobs—though, an overwhelmingly large percentage among them are in low paid petty jobs. Less than one-tenth of the youth male workers are engaged in cultivation and animal husbandry, and another 5 per cent are employed as agricultural labourers.

This also implies an increasing dependence of mountain agriculture on female workforce. In other words, female workers are bound to become more prone to the drudgery and rigours of mountain agriculture in the future unless revolutionary measures are adopted to turn agriculture into a lucrative enterprise, which will then be able to attract the male youth power.

Table 5.6

Pattern of Employment among Youth Workers (Aged 15 to 29 years)

(Per cent)

Occupation	Both non-migrant and migrant workers			Non-migrant workers		
	Male	Female	Person	Male	Female	Person
Cultivator	8.72	73.15	42.58	18.68	73.71	57.24
Animal husbandry	1.03	13.43	7.54	2.20	13.62	10.20
Agricultural wage labour	4.62	7.87	6.33	9.89	7.98	8.55
Non- agri. wage labour	12.31	0.93	6.33	25.27	0.94	8.22
Regular white collar service	8.21	1.39	4.62	4.40	0.47	1.64
Petty regular service	49.74	0.46	23.84	8.79	0.47	2.96
Trade & business	12.82	0.46	6.33	26.37	0.47	8.22
Other workers	2.56	2.31	2.43	4.40	2.35	2.96
Total	100.00	100.00	100.00	100.00	100.00	100.00

7. Educational Level of Workers

Educational level of the workforce plays a significant role in determining its employability and productivity (World Bank, 2000; ILO, 1998). It also determines the occupational category of workers. In case of our sample workers, a majority among them possesses low educational levels—about 28 per cent workers are illiterate and another 24 per cent are educated upto primary level education. Thus, nearly 28 per cent workers are educated (high school and above) (Table 5.7). Sex-wise analysis of educational attainment reveals that most of female workers are less educated.

A look at the educational level of workers reveals a very poor educational attainment of those working as self-employed in agricultural sector—mainly comprising females—as more than 40 per cent among them are illiterate and another one-fifth have completed their primary schools. Similarly about 61 per cent of casual wage labour in agriculture and about 32 per cent of their brethren in non-agriculture are either illiterate or just literate only. A glance at the educational level of salaried workers and self-employed in trade and business clearly shows that their educational attainment is definitely higher in comparison to other workers including those in regular petty salaried jobs. Among those in petty service more than 41 per cent have been educated upto middle standard, and about 53 per cent are educated. As against this, among the regular white

collar salaried workers, more than 85 per cent have been educated upto high school level and above—more than one-third being graduate and post-graduate. Notably, there is the highest percentage (14 per cent) of persons with technical education among the white-collar salaried workers (Table 5.7).

Table 5.7

Educational Level of Workers by their Status of Employment

Educational level	Agricultural sector		Non-agricultural sector				Total
	Self-employed	Agri. labour	Self-employed	Regular white collar service	Regular petty service	Casual wage labour	
Illiterate	41.40	46.67	12.14	3.19	3.90	22.22	27.45
Below primary	6.91	14.67	6.52	1.06	1.95	10.00	6.23
Primary	21.35	20.00	10.21	4.26	10.39	22.22	17.45
Middle	18.43	14.67	22.35	6.38	31.17	31.11	20.85
High school	8.34	4.00	24.69	22.34	24.68	12.22	13.58
Higher secondary	2.60	0.00	13.28	26.60	16.23	2.22	7.83
Graduate & above	0.98	0.00	8.95	22.34	9.09	0.00	4.81
Technical degree/diploma	0.00	0.00	1.85	13.83	2.60	0.00	1.79
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Number	799	85	133	89	159	120	1385

The message is thus, clear and loud. While education does matter in each occupation/job, whether in farm or non-farm, agriculture is still carried on by a large proportion of illiterate workers, largely comprising females. Also, it is abundantly clear that the educational attainment is a vital requirement for facilitating for a shift from farm to non-farm sector. The point has deep significance for the future generations of workers in that in times ahead, with the fast technological changes that are emerging the world over, there will be an ever growing demand for skilled and flexible workforce even in the rural areas. Moreover, there is a strong evidence to suggest that relatively higher level of education not only ensures higher levels of income but also proves more effective in skill training (World Bank, 1991; ILO, 1998; Mathur and Mamgain, 2002). If concrete improvements in the rural educational system do not occur apace, the rural labour force is bound to suffer further in the labour market

(Chadha, 2002). This underscores the need to enhance not only the educational levels of labour force but also to improve their skill levels so that they are able to compete in the labour market and thus be assured of a reasonable livelihood.

8. Multiple Employment

In a subsistence economy workers generally resort to multiple activities in order to augment their household income. Further, marginal or subsidiary capacity workers taking up various types of subsidiary employment form a sizeable proportion of the workforce, more so in the rural areas. The area of activity may be within or outside the household. Sometime it becomes very difficult to determine the primary activity of such workers. In 1999-2000, the proportion of subsidiary status workers in the rural workforce in India was over 12 per cent. In the case of Uttaranchal, the proportion is as high as 21 per cent, according to the NSS 55th Round (1999-2000). In our sample too, the proportion of subsidiary workers in the non-migrant workforce is comparatively higher at 26.7 per cent. Nearly three-fourths of subsidiary status workers are self-employed in cultivation and animal husbandry, 12 per cent are self-employed in trade and business and the remaining in casual wage works.

What is more important is that besides the substantial number of subsidiary workers, a larger proportion of principal or main workers too are engaged in more than one economic activity in order to maximise their days of employment and augment their household income. Furthermore, often the subsidiary capacity activity pursued by a primary worker is quite different from his primary activity in terms of industrial category.

The Population Census provides information on multiple employment in the form of a count of “all main workers with other work” (MWOW), but these figures do not reflect the diverse nature of work carried out by those engaged in multiple activities. Since 1993-94, NSSO data also captures the multiplicity among principal workers, which are not published. Based on NSS data, Ker and Singh (2001) estimate the multiplicity of employment among principal workers across the industry categories at one-digit level at all-India level in 1993-94.

According to them 42 per cent of principal status workers have taken up secondary gainful activity in rural areas.

For the present study, information was collected on main, secondary and tertiary gainful activities of those persons who reported themselves as 'workers', according to their primary activity, keeping in view the time criteria. The results, given in Table 5.8, show that a significantly high proportion (about 48 per cent) of principal workers take up more than one economic activity intermittently, and the extent of this activity is almost the same between both males and females. By excluding the regular salaried workers, two distinct features of the extent of multiple employment emerge. First, more than 58 per cent principal workers are engaged in secondary gainful activity and secondly, the extent of multiple employment is comparatively very high among the principal male workers as compared to their female counterparts—71 per cent male and less than half female workers being involved in multiple employment. About one-fifth of the primary male workers are engaged in more than two activities. The mobility of male workers coupled with females largely taking up the responsibility of household works have helped them to take up multiple employment; whereas this is not true for women. It can also be clearly seen in Table 5.8 that change in the status of employment in favour of regular salaried occupations considerably reduces the extent of multiple employment/activities among principal workers. This is specifically highlighted in Table 5.9.

A common feature of rural households in the mountain region of Uttaranchal, who own land irrespective of its size and scatteredness, is to engage themselves in cultivation as it provides not only food security for a few months but also provides fodder to their livestock. A substantive percentage (more than one-fifth) of principal workers also undertake cultivation as their secondary activity (Table 5.9). Since agriculture and animal husbandry are major occupations among the rural workforce, these are interchangeably reported by the bulk of the sample workforce. Nearly 30 per cent of cultivators undertake animal husbandry as their secondary occupation and 54 per cent of principal workers in animal husbandry also work as cultivators as their secondary activity.

About 12 per cent of cultivators work as casual wage labourers and 5.5 per cent as self-employed in petty trade and business as their secondary activity.

Table 5.8

Extent of Multiple Employment/Activities among Principal Workers

Number of employment/activity	Male	Female	Person
Principal workers including regular salaried workers (%)	(618)	(448)	(1066)
Single	52.60	51.86	52.26
Two	35.24	42.98	38.77
Three	12.15	5.17	8.96
Principal workers excluding regular salaried workers (%)	(365)	(437)	(802)
Single	28.53	51.06	41.63
Two	51.18	43.64	46.80
Three	20.29	5.30	11.58

Note: Figures in brackets are number of primary workers.

As is obvious, the extent of multiplicity of activities is highest among wage labourers—about 81 per cent of agricultural labour and 68 per cent of non-agricultural labour pursue secondary activity. Among the agricultural labourers, 40 per cent do cultivation, 10.7 per cent practice animal husbandry and 29.3 per cent work as casual wage labour in the non-farm sector. Similarly, more than half the non-agricultural wage labourers also cultivate land and 13.3 per cent work as agricultural labourers. Among the self-employed in trade and business, about 70 per cent also take up secondary employment—more than two-thirds alone are engaged in cultivation and another 1.2 per cent also work as casual wage labourers. This also suggests that trade and business is mainly being pursued as a survival strategy. Understandably, a very high percentage of workers in regular salaried jobs (more than 84 per cent) do not take up secondary employment (Table 5.9), the remaining are mainly engaged in cultivation.

Table 5.9

Percentage Distribution of Principal Workers Pursuing Subsidiary Activity

Principal activity	Secondary activity								
	None	Cultivation	Animal husbandry	Agricultural labour	Non-agricultural labour	Regular petty service	Self-empl. in petty trade and business	Other work	Total
Cultivation	51.31	0.00	29.04	7.21	5.02	0.00	5.46	1.97	100.00
Animal husbandry	36.62	53.52	0.00	2.82	2.82	0.00	4.23		100.00
Agricultural labour	18.67	40.00	10.67	0.00	29.33	0.00	0.00	1.33	100.00
Non-agricultural labour	32.22	51.11	2.22	13.33	0.00	0.00	0.00	1.11	100.00
Regular white collar service	84.04	14.89	0.00	0.00	0.00	0.00	1.06	0.00	100.00
Regular petty service	88.96	9.74	0.00	0.00	0.00	0.00	0.65	0.65	100.00
Self-empl. in petty trade and business	31.03	66.67	0.00	0.00	1.15	0.00	0.00	1.15	100.00
Other work	22.58	67.74	6.45	0.00	0.00	0.00	3.23	0.00	100.00
Total	52.26	20.94	13.68	4.34	4.53	0.09	2.92	1.23	100.00

As can be seen in Table 5.10, the extent of multiple activities among principal workers is comparatively high in high-income group households. By undertaking such activities these households are able to improve their income levels. The poorest are constrained to take up multiple activities in the effort to improve their earnings. At the same time, being engaged in multiple activities by a principal workers does not significantly increase the household income—an aspect that will be elaborated in Chapter VII. Nevertheless, it merits mention here that a majority of workers (62 per cent) engaged in multiple occupations/activities belong to the lowest three income strata. Thus, the message is clear, namely, being engaged in multiple activities is a typical case of survival strategy for the majority of workers.

Table 5.10

Multiplicity of Employment/Activities among Principal Workers by Income Class of Households

Per capita annual income range of households (Rs.)	Number of employment/activities (%)			Total number of workers	% of workers with more than one employment/activity
	Single	Two	Three		
Less than 2500	59.78	35.87	4.35	91	7.82
2500 – 5000	42.57	41.37	16.06	245	30.06
5000 – 7500	43.14	43.63	13.24	201	24.41
7500 – 12500	42.19	55.47	2.34	127	15.68
12500 - 22500	26.44	55.17	18.39	86	13.51
22500 and above	23.08	69.23	7.69	51	8.38
Total	41.63	46.8	11.58	802	100.00

Note: Number of workers excludes regular salaried employed.

What emerges clearly is that due to over-dependence on the farm sector a growing number of rural workers, particularly males, are being released in a Lewisian framework (1954) from cultivation to wage seeking in the mountain region of Uttaranchal. But due to lack of alternative productive employment opportunities within the region, a larger proportion among them migrate and an overwhelming majority of those who remain behind also pursue multiple activities to enhance their household income to attain certain threshold level. The Lewis model remains silent on this kind of multiple employment, which entails a high degree of uncertainty and often leads distress diversification. A typical example is of a cultivator or self-employed in petty trade and business resorting to casual wage labour for augmenting his low levels of household income. However, a number of studies have confirmed that the capability to diversify income sources is critical for the survival capabilities of the rural poor (Malton, 1979; Haggblade et al., 1989; Hazell and Haggblade, 1993). This is partly because poor households are more vulnerable to seasonality and risk factors than better-off households and because poor households lack assets—they may be landless or near landless, and possess few or no livestock. Lacking the capability to produce enough food on own account, the poor need to diversify income sources to survive. However, they are generally unable to do so due to their poor asset position. This brings to the fore the need for initiating the government policies aimed at providing productive assets to such households.

Increasing the survival options of rural poor is the major reason why many researchers regard the objective of rural sector diversification as an important goal of development policy. One strand of thinking is to adopt the rural growth linkage approach, which sees rural non-farm growth being stimulated by agricultural growth (Hazell and Haggblade, 1993; Bhalla, 1990; Papola, 1987, 1992). Another strand is the active promotion of rural non-farm enterprises (Saith, 1992; Fisher et al., 1997). In the context of the mountain areas of Uttaranchal the rural households have very few survival options outside the farm sector within the village. The predominantly backward mountain agriculture could not stimulate the growth of non-farm employment opportunities and, thus, the survival options other than cultivation are mainly the result of developmental works by the government and increasing out-migration of labour, particularly males, in search of employment outside their villages.

9. Change in Type and Nature of Employment

Changes in employment structure occur when new workers take up different works than the existing ones and some workers change their employment/activity. For understanding the changes in the employment structure of the population over the years, information was collected regarding the type and nature of principal activity of the sample population for three periods, viz., at the time of survey, 5 years and 10 years prior to the survey. For understanding the changes in the structure of workforce we categorised all workers by their sector and type of employment at the time of reference period. This shows the magnitude of structural change in the workforce, if any, over a given time period.

Looking at the employment structure of the workforce, it is found that the percentage of self-employed in agriculture (cultivators) has declined rapidly over the last 10 years—from 61.3 per cent to about 49 per cent. There has been a corresponding increase of about 13 percentage points in the share of self-employment in non-agricultural sector (Table 5.11). The share of self-employed in non-agricultural sector more than doubled from 5 per cent to 10.8 per cent during the last 10 years. The share of workers in regular salaried increased from

12 per cent to 18 per cent over the period and that of casual labour also witnessed marginal increase. During the past five years there has been a shift of 5.6 percentage points in employment from agriculture to non-agricultural sector. The proportion of salaried workers improved by 2.5 percentage points over the past five years (Table 5.11).

Table 5.11

Changes in the Structure of Employment

Occupation/type of employment	Structure of employment at the reference period		
	Present	5 years ago	10 years ago
Cultivator	48.88	53.22	61.28
Self employed in animal husbandry, poultry, etc.	8.27	8.90	9.83
Collection of fodder/firewood for sale	0.54	0.48	0.34
Casual labour in agriculture	6.14	6.78	5.21
Sub-total agricultural sector (1 to 4)	63.83	69.39	76.66
Casual wage labour - non agriculture	8.66	7.57	6.50
Regular salaried job	17.91	15.46	12.18
Self-employed in shop-keeping/petty trade/hotel and restaurants	4.75	3.87	2.04
Self-employed in transport and communication	1.64	0.93	0.14
Self-employed in repair and maintenance	1.21	0.40	0.16
Other self-employed	1.00	0.94	0.70
Caste based occupation	1.00	1.45	1.62
Sub-total non-agricultural sector (5 to 11)	36.17	30.62	23.34
Total (1 to 11)	100.00	100.00	100.00

10. Determinants of Diversification of Workforce from Farm to Non-farm Sector

After analyzing the changes in occupation of the sample workforce, it will be important to examine the factors which determine the shift of workforce from farm to non-farm sector. As seen earlier in this Chapter (Section 3), about 36 per cent of the sample workforce is employed in the non-farm sector; and out- migration is an important source for non-farm occupations as it contributed nearly one-fifth of total employment to the sample households (or 42 per cent of total non-farm employment). By excluding out-migrant workers, more than one-fourth of the non-migrant workforce is employed in the rural non-farm sector. The factors determining out-migration are discussed in Chapter VI. Here we have confined

our analysis to the determinants of diversification of non-migrant workforce into rural non-farm activities in a theoretical perspective as discussed in Chapter I. 'Growth linkages model' views increasing farm productivity and income as the source of diversification of employment and earning opportunities in rural areas. It is also assumed that growth in farm income increases the demand for casual wage labour in agriculture thus reducing the 'distress syndrome'. Conversely, 'residual sector hypothesis' views growth in rural non-farm employment as a means of supplementing household income, as a result of poor growth in agriculture. Outside agriculture, other factors which influence the diversification of rural workforce into non-farm activities are educational improvement, location of a household and caste of a worker.

Improvement in educational levels enables the labour force to secure employment outside the farm sector. At the same time educated labour force is generally unwilling to participate in agriculture and allied activities. It is assumed that households situated nearer urban centres/rural *bazaars* have relatively better access to non-farm occupations. Similarly, it is assumed that remittances not only significantly increase the income levels of a household but also enable it to invest the same in farm as well as non-farm activities.

With this brief background, the following multiple regression model has been fitted in order to determine the factors responsible for the diversification of workforce towards rural non-farm employment in the mountain areas of Uttaranchal.

$$RNFE = b_0 + b_1\ Agincome + b_2\ Edu + b_3\ Dcast + b_4\ Location + b_5\ Remit + u$$

Where
RNFE = Percentage share of rural non-farm workers in total non-migrant workforce
Agincome = Per household farm income in Rs. ('000).
Edu = Percentage of educated workers in total workers
Dcast = Dummy of the caste of a household, if SC=1, Otherwise '0'
Location = Dummy of the location of a household, if located in 'peri-urban areas'=1: otherswise '0'.
Remit = Per household amount of remittance (Rs. '000).
u = Unexplained parameter.

The results of the model are given in the following Table 5.12

Table 5.13
Determinants of Rural Non-farm Employment

Variable	Value of Coefficient	t' values
Constant	44.58**	13.32
Agincome	-0.57**	-3.67
Edu	0.2**	4.14
Dcast	12.63**	-3.62
Location	14.1**	4.1
Remit	-0.57*	-1.97
R^2	0.34	
R^{-2}	0.32	

Note: 1. ** Significant at 1 per cent level of significance
2. * Significant at 5 per cent level of significance

It can be inferred that the diversification of rural workforce towards rural non-farm employment is mainly a 'distress phenomenon' among the sample households as growth in farm income leads to significant shift in the workforce from subsidiary non-farm activities. This can been seen in the negative value of coefficient of 'Agincome' in Table 5.12, which is also significant at 1per cent level of significance.

Since an overwhelming majority of the sample households do practice traditional cereal-based farming, their income levels are generally low, as will be seen in Chapters VII and VIII, which compels households to engage themselves in subsidiary activities. Similarly, once a household starts receiving remittances of a sizeable amount, it tends to gradually withdraw from the subsistence rural non-farm activities. This tendency is clearly established in the above equation. Caste is yet another important variable affecting the diversification of the rural workforce. Owing to high incidence of landlessness among the Scheduled Caste households they work mainly as casual wage labour, which is generally available outside the farm sector. Also due to their solely involvement in caste-based occupations like black smithy, copper smithy, basket weaving and drumbeating, their share in rural non-farm activities is generally higher than other cast-group households. The significant positive relation between the caste and rural non-farm employment testifies this.

Improvement in educational levels of workers has a significant positive impact on their diversification from farm into non-farm occupations. Similarly, proximity to urban centres and rural *bazaars*, which are equipped with comparatively better infrastructure, has a significant positive impact on the diversification of workforce from farm to non-farm sector activities. This is clearly evident in our model.

The results of the model, thus, clearly support the case for improving the existing low levels of farm income for a very large segment of rural households in the mountain areas of Uttaranchal. This would necessitate diversification of the present cereal-based subsistence agriculture into a commercial enterprise—fruits and vegetable production —with a strong support of facilities such as technical know-how, particularly post harvest technology, credit and market. Yet another equally important policy issue relates to enhance the educational level of workforce, particularly their technical skills, for improving their employability in the labour market. This, in turn would, not only require (a) reorientation of the existing programmes for technical and vocational education with more mountain specificity in their curriculum, but also, (b) the inclusion of provisions for expanding the reach of vocational and technical education programmes.

III. CONTRIBUTION OF GOVERNMENT EMPLOYMENT PROGRAMMES IN SUPPORTING LIVELIHOODS

As regards the contribution of self-and wage employment programmes in employment and income generation in the mountain region of Uttaranchal, the performance seems to be rather dismal, both in terms of coverage and benefits. This is examined in the following paragraphs, based on our primary data.

1. Self-employment Programmes

(i) Performance of IRDP

Under the Integrated Rural Development Programme (IRDP), about 12.3 per cent of sample households could receive assistance (Table 5.13), which is mainly availed for the purchase of milch animals, goats, sheep, horticulture, etc.

The average amount of assistance per beneficiary household is Rs. 11,620, which in turn could generate an income of about Rs. 700 per month (Table 5.15).

Regarding the coverage of the households under IRDP a few points deserve to be mentioned. The percentage of beneficiary households is relatively higher among the SCs (21.9 per cent), STs (25 per cent) and landless households (29 per cent) (Table 5.13). More than one-fourth beneficiary households belong to relatively better-off income groups, i.e., those with annual per capita income of more than Rs. 7500 (Table 5.14). Even among the ST beneficiary households, more than three-fourths are better-off. Though the percentage of IRDP beneficiary households among the upper caste households is comparatively less than 10 per cent, more than 30 per cent among them belong to the higher income groups.

Table 5.13

Percentage of Households Benefited under Government Employment Programmes

Household group	Programme		
	JRY/EAS	IRDP	PMRY
Land class (in acres)			
Landless	15.79	28.95	2.63
upto 0.5	31.29	11.56	4.76
0.5 to 1.5	37.50	8.59	-
1.5 to 2.5	41.18	13.73	1.96
2.5 to 5.0	50.00	9.38	3.13
>5.0	33.33		
Caste			
Brahmin	35.37	9.76	2.44
Rajput	34.19	6.45	1.94
OBC	3.70	3.70	3.70
SC	42.86	21.85	1.68
ST	25.00	25.00	12.50
Per capita annual income class (Rs.)			
Less than 2500	35.90	5.13	-
2500 – 5000	43.18	14.39	3.03
5000 – 7500	40.24	15.85	1.22
7500 – 12500	35.06	10.39	2.60
12500 – 22500	13.64	11.36	4.55
22500 and above	4.00	8.00	4.00
Total	34.59	12.28	2.51

Overall, more than 30 per cent of IRDP beneficiary households belong to higher per capita annual income group of Rs. 7500 and above, much above the poverty line. Looking at the magnitude of income that has been generated under IRDP, there would have been a marginal increase in household income. Thus, it can be said that there are at least 15 per cent IRDP beneficiary households, which though economically prosperous managed to get the IRDP assistance.

Table 5.14

Percentage Distribution of IRDP Beneficiary Households across their Income Class

Household group	Per capita annual income class (Rs.)						Total
	Less than 2500	2500 – 5000	5000 – 7500	7500 – 12500	12500 – 22500	22500 and above	
Land class (in acres)							
Landless		36.36	36.36	18.18		9.09	100
Upto 0.5	11.76	41.18	23.53	5.88	17.65		100
0.5 to 1.5		45.45	18.18	18.18	9.09	9.09	100
1.5 to 2.5		42.86	14.29	28.57	14.29		100
2.5 to 5.0			66.67	33.33			100
Caste							
Brahmin		50.00	12.50	25.00	12.50		100
Rajput		30.00	40.00	20.00	10.00		100
OBC			100.00				100
SC	7.69	42.31	26.92	15.38	3.85	3.85	100
ST		25.00			50.00	25.00	100
Total	4.08	38.78	26.53	16.33	10.20	4.08	100

The poor households are reluctant to take assistance, as the scheme requires loan payment in monthly installments in a stipulated time period. Any default in repayment will disqualify them for the amount of subsidy, which is released by the banks after the repayment of the loan amount. Most of the local banks have adopted this practice, while granting IRDP loan, which is against the guidelines for the scheme. Also, the income generation under the asset created has a higher degree of uncertainty in the poor households. A typical example is of a poor household belonging to SCs, which decided to purchase buffalo under IRDP assistance. The milk yield is so low that it is hardly sufficient to meet the requirements of his family so that eliminating any possibility of a marketable surplus. The main reason for very low milk yield is poor quality of milch cattle and

lack of good quality of fodder. The question arises as to how will he repay the loan, as he has virtually no additional source of income. This phenomenon is quite common among poor households in the mountain region of Uttaranchal.

Table 5.15
Average Value of Assets and Income Per Beneficiary Household under IRDP

Household group	Value (Rs.)		Income as percentage of assets
	Assets	Income	
Land class (in acres)			
Landless	13364	10279	76.92
Upto 0.5	11000	5988	54.43
0.5 to 1.5	11855	10428	87.96
1.5 to 2.5	11143	9586	86.03
2.5 to 5.0	9000	3300	36.67
Caste			
Brahmin	7775	7288	93.73
Rajput	15100	7145	47.32
OBC	10000	1800	18.00
SC	11969	8565	71.56
ST	8750	13900	158.86
Per capita annual income class (Rs.)			
Less than 2500	8500	5175	60.88
2500 - 5000	10853	6562	60.46
5000 - 7500	9785	4954	50.63
7500 - 12500	13625	13563	99.54
12500 - 22500	9200	9500	103.26
22500 and above	32000	27500	85.94
Total	11620	8340	71.77

A very prominent feature that emerges from Table 5.16 is that only the better-off IRDP beneficiary households have been able to generate a respectable income from the assets as reflected in income as a percentage of value of assets. They could earn almost equal to the amount of their assets, whereas poor beneficiary households could earn about half of the asset value. The income from assets, of course, includes both marketed and domestically consumed shares.

(ii) Prime Minister Rozgar Yojana

The coverage of PMRY is rather very scanty as less than three per cent (or 10) households reported benefited under the scheme—mostly STs and OBCs located in peri-urban villages and belonging to higher income strata (Table 5.13).

Reasons for such low coverage under PMRY may not necessarily be relating to unwilling of educated unemployed youth to avail such scheme. Rather the banks follow strict parameters while screening educated unemployed for the assistance. An evaluation study points towards high incidence of rejection of applications for loans by the banks on grounds of inadequate skills/training of educated unemployed, it has been observed in one of the districts in Uttaranchal (IAMR, 2000). .

2. Wage Employment Programmes: Jawahar Rozgar Yojana

The wage employment programme viz., JRY and EAS taken together could not make much dent on the prevailing higher incidence of seasonal unemployment particularly among the casual labour households. About 35 per cent of the sample households were reported to have benefited under the JRY. Understandably, the highest percentage of households among the SCs (42.9 per cent) benefited under the programme followed by upper caste households (about 35 per cent) (Table 5.13). About one-fourth of the JRY beneficiary households, mostly among the upper caste households, are better off. Even among the SC beneficiary households, about 16 per cent are better-off with annual per capita average income being more than Rs. 7500 (Table 5.16).

On an average, about 22 days of employment could be provided to each beneficiary household under the wage employment programmes of the government during one year, which is definitely a miniscule in the face of large degree of underemployment among the rural households in the mountain region of Uttaranchal (Table 5.17).

Table 5.16

Percentage Distribution of JRY/EAS Beneficiary Households across Income Class

Household group	Per capita annul income class (Rs.)						Total
	Less than 2500	2500 - 5000	5000 – 7500	7500 – 12500	12500 - 22500	22500 and above	
Land class (in acres)							
Landless		33.33	33.33	33.33			100
Upto 0.5	13.04	45.65	26.09	13.04	2.17		100
0.5 to 1.5	14.58	43.75	12.50	20.83	6.25	2.08	100
1.5 to 2.5		38.10	42.86	14.29	4.76		100
2.5 to 5.0	6.25	31.25	25.00	31.25	6.25		100
>5.0				100.00			100
Caste							
Brahmin	10.34	48.28	17.24	17.24	3.45	3.45	100
Rajput	11.32	33.96	22.64	26.42	5.66		100
OBC			100.00				100
SC	9.80	47.06	27.45	15.69			100
ST		25.00	25.00		50.00		100
Total	10.14	41.30	23.91	19.57	4.35	0.72	100

Table 5.17

Per JRY/EAS Beneficiary Household Average Days of Wage Employment

Household group	Per capita annual income class (Rs.)						Total
	Less than 2500	2500 - 5000	5000 - 7500	7500 - 12500	12500 - 22500	22500 and above	
Land class (in acres)							
Landless		16.50	17.50	24.50			19.50
Upto 0.5	17.67	19.19	32.17	17.50	20.00		22.17
0.5 to 1.5	14.43	18.24	26.67	37.10	15.33	8.00	22.27
1.5 to 2.5		22.63	24.33	23.67	20.00		23.38
2.5 to 5.0	18.00	19.40	23.75	21.60	30.00		21.75
>5.0				30.00			30.00
Caste							
Brahmin	18.67	17.50	23.60	27.80	15.00	8.00	20.03
Rajput	15.50	22.28	21.92	30.50	18.33		23.38
OBC			30.00				30.00
SC	15.20	17.96	32.79	21.00			22.24
ST		20.00	25.00		23.00		22.75
Total	16.07	19.25	27.12	27.19	19.33	8.00	22.28

The average days of employment under JRY across the various household groups do not show much variation in Uttaranchal (Table 5.17). But it is again clear that the JRY beneficiary households belonging to lower income

groups do receive relatively less days of employment under the scheme as compared to those belonging to higher income group. This holds true across the caste and land class categories of households. It clearly shows that despite the larger coverage, the poor are able to get less days of employment, which itself defeats the very purpose of the scheme, as the allocation of wage work discriminates against the poor, particularly SCs. This is testified by the participation of well-off sections like pensioners in JRY works in a few sample villages. In another village, which is comparatively well off, the Nepalese labour had to be hired by the village Pradhan to complete the work under JRY due to unavailability of local labour.

In most of the sample villages, wages are paid under JRY as per the prescribed norm, i.e. Rs. 47.50 per day. No gender discrimination in the payment of wages is noticed. However, in some villages, particularly those with high degree of commercial farming, where labour shortage is a problem, the market wage rate of Rs. 70-80 per day is paid to complete work under JRY. Examples that merit mention are the Bohrakot and Baragaon villages where Village Pradhans find great difficulty in completing the work under the JRY at the stipulated wage rate of Rs 47.50. They had to hire Nepalese labour to construct a link road and for performing hard tasks such as loading and unloading cement, sand, etc., to the construction sites, which are generally far away from the main road heads. The diversification of agriculture in these villages has ameliorated the lot of the poor over the years and has also led to higher reserve price of labour with the increase in employment opportunities.

Thus, what is needed is to allocate more funds to wage employment programmes while ensuring along with a more equitable distributive system so that poor households get employment for at least 100 days. The tendency of hiring outside labour like Nepalese in wage employment programmes should be strictly discouraged. Transparency, as envisaged in the 73rd Amendment for the Panchayati Institutions, is yet elusive in many Village Panchayats in Uttaranchal. It needs to be introduced at all levels in the implementation of food distribution and employment programmes.

IV. UNEMPLOYMENT AND UNDEREMPLOYMENT

1. Unemployment

In our sample, nearly 3 per cent of labour force is unemployed according to its principal plus subsidiary status. Sex-wise, about 3.1 per cent of the male and 1.8 per cent of the female labour force is unemployed. However, according to principal activity status of the labour force, nearly one-tenth of it is unemployed. The unemployment rate among males is very high at 15 per cent and that for females at 3.2 per cent, respectively (Table 5.18).

Table 5.18
Sex-wise Unemployment Rate

Sex	Principal status	Principal plus subsidiary status
Male	15.15 (103)	3.13 (24)
Female	3.17 (16)	1.83 (12)
Person	10.04 (119)	2.53 (36)

Note: Figures in brackets are absolute number of unemployed.

Here we have presented the broad characteristics of those persons who are unemployed according to their primary activity status. As obvious, unemployment is predominantly among the youth (15-29 years) as they alone accounted for about 92 per cent of unemployed—74 per cent in the age group, 15-24 years. The reason for higher rate of unemployment, particularly in the age group, 15-19, is the overwhelmingly large number of youth who seek employment soon after completing their school examinations (high school and or higher secondary).

This becomes very clear by looking at the unemployment rate among the educated labour force. The rate of unemployment among the labour force possessing high school/higher secondary education is almost double (17.5 per cent) that of their counterparts who passed the middle school examination (9.6 per cent). Similarly, the unemployment rate is highest at 24 per cent among the youth with graduates and post graduates degrees according to principal status. The high rate of unemployment among graduates is also no exception to the national pattern. Technical education significantly improves the employability of

the labour force as is evident from the fact that the unemployment rate among technical degree/diploma holders is almost half that of those with secondary education and even far less as compared to graduate degree holders (Table 5.19).

Table 5.19
Education-specific Unemployment Rate (Principal Status)

Educational level	Unemployment rate	% of unemployed registered in employment exchanges
Illiterate	0.78	-
Middle and below	9.58	23.00
High/higher secondary	17.45	45.45
Graduate and above	23.88	100.00
Technical deg/diploma	7.52	100.00
Total	10.04	42.16

Note: Figures in parentheses indicate number of unemployed.

Table 5.20

Rate of Unemployment among Households by their Income Class

Per capita household income (Rs.)	Activity status		% of primarily unemployed registered in employment exchanges
	Primary	Primary plus secondary	
Less than 2500	14.41	1.25	28.77
2500 – 5000	10.98	1.73	33.33
5000 – 7500	12.86	1.87	41.39
7500 – 12500	7.02	2.65	45.46
12500 – 22500	7.01	3.98	46.45
22500 and above	7.32	5.49	100.00

The analysis of unemployment rate across the household income groups shows that a proportionately larger number in the labour force seek employment in their primary capacity in the lower income groups, which tend to decrease as the household income increases (Table 5.20). But at the same time, it is understood that the unemployed in lower income group households could not remain so and sell their labour in the market on finding intermittent work. As such open unemployment among such persons is very low. As the income level of households improves, the rate of open unemployment (principal plus subsidiary

status) tends to increase, which means that relatively better-off persons can afford to remain unemployed throughout a year (see Table 5.20).

(i) Registration for Employment

About 42 per cent of the unemployed are registered for employment in employment exchanges. Among unemployed males, who alone account for 86.4 per cent of unemployed, only 38 per cent are registered. Contrary to this, about 65 per cent unemployed females is registered for jobs. All job seekers with the graduate and technical degrees are registered in employment exchanges (Table 5.19). Also, the percentage of registered job seekers is high in richer households simply due to their better access to information about the employment exchanges. However, the inaccessibility of employment exchange is the major reason for low registration of rural job-seekers not only in the mountain areas of Uttaranchal but also in other regions in India since most of the employment exchange are located in urban centres, which severely limits their coverage. The other reason for low registration includes lack of awareness about the employment exchange services and their growing failure in providing employment to the registered job seekers.

(ii) Severity of Unemployment

Since a very high percentage (more than one-tenth) of labour force reported to be unemployed as per their primary activity status along with a low open unemployment rate, it will be worthwhile to examine the degree of severity of unemployment among them. Based on the time criteria of period of unemployment, we have categorised unemployed persons into three groups according to the severity of unemployment: moderate (3-6 months), severe (6-9 months) and absolute (more than 9 months). Nearly 70 per cent of unemployed suffer with 'severe' unemployment syndrome and another 18 per cent are absolutely unemployed. The severity is high among educated, females, and comparatively aged unemployed. It is also high among those belonging to the very poor and richer groups of households (Table 5.21).

Table 5.21
Severity of Unemployment

Characteristic	Moderate	Severe	Absolute
Per capita income class (Rs.)			
Less than 2500	-	84.62	15.38
2500 – 5000	9.68	80.65	9.68
5000 – 7500	18.75	65.63	15.63
7500 – 12500	7.14	65.71	27.14
12500 – 22500	33.33	33.33	33.33
22500 and above	-	20.00	80.00
Sex			
Male	11.96	73.91	14.13
Female	20.00	40.00	40.00
Age-group			
15-19	13.79	72.41	13.79
20-24	16.00	68.00	16.00
25-29	11.11	66.67	22.22
30-59		70.00	30.00
Level of education			
Illiterate		100.00	
Primary	25.00	50.00	25.00
Middle	10.81	81.08	8.11
High school	14.29	76.19	9.52
Higher secondary	13.04	73.91	13.04
Graduate & above	14.29	28.57	57.14
Technical degree/diploma			100.00
Total	13.08	69.16	17.76

2. Underemployment

As seen earlier, in Table 5.4, about half the sample workforce (non-migrant) is employed as cultivator, 12 per cent is employed in allied activities and another one-fifth is employed as casual wage labour. Apart from these workers, there are about 20 per cent principal workers who are also engaged in cultivation in their subsidiary capacity. Also, there are about 9 per cent principal workers who work as casual labour in their subsidiary capacity. As stated earlier, the level of open unemployment is very low in a poor economy. Rather the major problem is of underemployment. Since agriculture—the major family enterprise—provides only seasonal employment, there is a large labour input that remains without work for a considerably longer period. Also, due to lack of employment opportunities outside agriculture, there is a prima facie case for the population pressure on

limited land. This predicament is more so in mountain districts of Uttaranchal. This implies that there are more workers engaged in agriculture than are actually required to make the optimum use of available land—atypical case of zero marginal productivity.

We have also made a limited attempt to examine the extent of underemployment among the sample workforce through the usual work-time disposition approach. Since most of the workers engage themselves in multiple activities, it becomes more risky to calculate total labour input that each worker puts in during a given time period since it is based on the subjective assessment of the respondents. Taking 270 days in a year as the normal period of full employment, the severity of underemployment is calculated in Table 5.21. The figures relate to resident working population only. On this basis, nearly 48 per cent of the working population can be termed as underemployed among the sample villages. The extent of underemployment is more among males (56 per cent) than females (40 per cent). Khanka (1988) reports 62 per cent and 32 per cent of the male and female workers underemployed, respectively. Similarly Bora (1996) reports 49 per cent and 34 per cent of the male and female workers underemployed, respectively. This also implies that over the past several years the incidence of underemployment could not be reduced in the rural areas of Uttaranchal. This becomes very obvious as employment generation programmes miserably failed to create substantive days of employment for rural population coupled with the lack of alternate employment opportunities outside the farm sector.

Apart from the high incidence of underemployment, the duration of underemployment is also high among the male workers—more than half of underemployed males remaining without work for 3 to 6 months as compared to 34 per cent for females. This also tends to confirm our earlier observation that agriculture is largely a women's preserve in the mountain region of Uttaranchal. Overall, for two-thirds of the underemployed, the spell of underemployment exceeds three months (Table 5.22).

An objective assessment of the extent of underemployment has to be made in terms of labour productivity—an issue that has been taken up in Chapters VII and VIII. The high incidence of underemployment by resident workers is a pointer towards a higher rate of out-migration.

Table 5.22

Severity of Underemployment

Severity	Male	Female	Person
Mild (less than 3 months)	24.29	47.29	33.95
Moderate (3-6 months)	51.79	34.48	44.51
Sever (6-9 months)	20.71	18.23	19.67
Absolute (more than 9 months)	3.21	-	1.86
Total underemployed	100.00	100.00	100.00
Total number	280	203	483
% of underemployed to total workers	55.56	39.88	47.63

3. Work Time Disposition of Female Workers

As noted earlier, women are the backbone of agriculture in the mountain villages of Uttaranchal. We have collected information on their average daily time disposition both for peak and lean seasons from the point of view of agricultural work. This is presented in Tables 5.23 and 5.24. Looking at their time disposition, it is observed that women are hardly underemployed, given their multifarious activities. They work on an average for 13 hours during the peak agricultural season and for about 10 hours during the lean season. During the peak season, nearly one-third of their time is spent on cultivation, another one-fourth in fodder and fuel collection, and about 15 per cent of it is spent on animal husbandry. In other words, nearly three-fourths of their daily time is spent in out-door gainful activities. During the lean period, most of their time goes in fuel and fodder collection. In other words, the peak season increases the burden of women by only 32 per cent. Thus, they get very little time for child rearing—in most case even less than an hour.

Table 5.23

Daily Average Time Disposition of Female Workers by their Land Class: Peak Agricultural Season (in hours*)

Activity	Land class (in acre)							Percentage distribution
	Landless	Upto 0.5	0.5 to 1.5	1.5 to 2.5	2.5 to 5.0	>5.0	All	
Agriculture	0.29	2.59	3.48	4.31	5.12	5.53	4.27	31.71
Animal husbandry	1.89	2.00	1.93	2.25	2.25	2.17	1.98	14.73
Fodder and fuel collection	4.18	2.75	3.43	3.05	2.00	2.30	3.16	23.47
Water fetching	0.38	0.24	0.31	0.11	0.21	0.50	0.25	1.85
Grinding, husking	0.02	0.04	0.07	0.10	0.14	0.06	0.07	0.49
Sub-total outdoor (economic) activities	6.76	7.62	9.22	9.82	9.72	10.56	9.73	72.26
Household (non-economic) activities	3.30	3.65	3.63	3.62	3.08	3.00	3.74	27.74
Total (outdoor + household)	10.06	11.27	12.85	13.44	12.80	13.56	13.46	100.00

Table 5.24

Daily Average Time Disposition of Female Workers by their Land Class: Lean Agricultural Season (in hours*)

Activity	Land class (in acre)							
	Landless	Upto 0.5	0.5 to 1.5	1.5 to 2.5	2.5 to 5.0	>5.0	All	Percentage distribution
Agriculture	0.00	0.20	0.30	0.30	0.65	0.35	0.42	4.10
Animal husbandry	1.89	2.00	1.93	2.25	2.25	2.17	1.98	19.38
Fodder and fuel collection	4.18	3.68	4.28	3.85	3.00	3.00	3.78	36.94
Water fetching	0.38	0.24	0.31	0.11	0.21	0.50	0.25	2.43
Grinding, husking	0.02	0.04	0.07	0.10	0.14	0.06	0.07	0.65
Sub-total Outdoor (economic) activities	6.47	6.16	6.89	6.61	6.25	6.08	6.50	63.50
Household (non-economic) activities	3.30	3.65	3.63	3.62	3.08	3.00	3.74	36.50
Total (outdoor + household)	9.77	9.82	10.52	10.23	9.33	9.08	10.23	100.00
Incremental workload during peak season (%)	2.94	14.85	22.16	31.32	37.13	49.39	31.56	-

Note: *Figures after decimal points are not minutes. These are merely indicative of approximate to an hour, i.e. decimal point 5 and above shows half-hour and above.

The average time spent on work by female workers is positively related with the size of land holdings that a household owns apart from the number of workers, of course. For example, female workers belonging to small land holding size (2.5 acre and above) have to put in nearly 60 per cent additional time in

comparison to those belonging to landless households. It is important to note that females belonging to landless households spend comparatively more time (42 per cent) on the collection of fuel and fodder, mainly from forests, which they sell partly in the market. They are the victims of deforestation, as they have to spend more time towards maintaining their livelihoods from animal husbandry. The time disposition of mountain females only confirms the hard economic life they lead.

V. CONCLUSION

A distinguishing feature of the rural population in the mountain region of Uttaranchal is the very high work participation rate among females as compared to other areas in India. About 56 per cent of female and 58 per cent of male population constitute the labour force according to their usual activity status. A substantially high percentage (nearly 9 per cent) of the population is also engaged in gainful activity in their subsidiary capacity. Thus, in a subsistence economy, no able-bodied person can afford to remain idle as a part of their survival strategy. The availability of productive assets like land and livestock has a significant positive relation with the female WPR in the sample households. Our analysis of WPR shows that it tends to increase with the increase in household income level in the case of males, whereas it tends to decrease among females after a household attains a certain threshold income level (an inverse 'U' shaped relationship).

Another distinctive feature of the rural workforce in the mountain region of Uttaranchal is its excessive dependence on the agricultural sector since as much as 64 per cent among them are employed on it. By excluding out-migrant workers, as much as 74 per cent of the resident workers are dependent for their livelihoods on the agricultural sector, mainly as self-employed cultivators. Indeed females are the backbone of mountain agriculture, as they alone constitute three-fourths of the workforce engaged in agriculture. Thus, non-farm employment is primarily the domain of male workers. This kind of highly gendered allocation of work is the result of the 'risk averting' strategy adopted by a household, which aims to prepare its male workforce for taking up more remunerative wage work

outside agriculture and leaving the primary responsibility of cultivation to its female members. The high incidence of male out-migration among the sample workers is the outcome of such a household strategy for sustaining their livelihoods. This becomes clear from occupational pattern of the workforce in that migration has helped, at least in securing regular salaried jobs to nearly one-third of male workforce. In effect, a sizeable degree of the diversification of the workforce is brought about through out-migration.

It is seen that households belonging to SCs, landless and lower income groups have a proportionately high share of casual wage workers. As against this, the fact is that an increasing percentage of the workforce in white-collar jobs and non-farm self-employment enables a household to attain higher income level. Our results show a significant change in the occupation of workers particularly during the last one decade. The shift has been mainly towards rural non-farm occupations. Agriculture acts as sponge to absorb the new entrants to workforce in the initial period, and thereafter gradually releases them to self-employment outside the region.

Prevalence of multiple employment among rural workers is yet another important feature of rural Uttaranchal as about half the principal workers are engaged in multiple occupations in order to enhance their household income to a certain threshold level. This is a typical case of 'distress diversification'. The extent of multiplicity is highest among casual wage labourers with more than three-fourths of them being engaged in more than one occupation. Thus, the greater extent of multiple employment among the principal workers is the manifestation of a poor livelihood resource base—physical, human and social capital—with near absence of technological applications and institutional bottlenecks, leading to a precarious situation where a majority of them are unable to ensure a secured livelihood from a single source. These livelihoods are more vulnerable to seasonality and risk factors—nearly half the rural workforce remains underemployed, which, in other words, implies low levels of productivity of such workers. The extent as well as severity of underemployment is, however, much larger among the rural male workforce. Government wage employment

programmes could hardly ameliorate the employment situation of the poor households as these provide only about 22 days of casual wage employment.

It also emerges strongly that diversification of the workforce from farm to rural non-farm activities in the mountain areas of Uttaranchal is a 'distress syndrome' in majority of the cases. As growth in farm income tends to reduce significantly the size of employment of rural non-farm activities. On the other hand, improvement in educational level of the workforce helps it to diversify into remunerative rural non-farm activities. It is seen that the improvement in educational levels also equips the workforce for taking up self-employment in non-farm activities. This has also considerably increased the mobility, particularly of male workforce. Looking at the present-day scenario, since less than 30 per cent workers are educated (high school and above) and even less than 2 per cent have technical education, the immediate policy concern should be to enhance the educational level of the future entrants to the workforce and to facilitate their increased participation in vocational and technical education with a view to improve their employability and productivity. In particular, there is a need to improve the education and skill levels of female workforce who outnumber males in the workforce (non-migrant) in the rural areas of mountain region of Uttaranchal, and are victims of extreme forms of gender bias, almost in every field of activity—education, health, nutrition, work, mobility, decision-making, etc. More than 88 per cent among them are employed in cultivation and animal husbandry. Accordingly, the immediate priority should be to promote their productivity by diversifying their activities into those other than agriculture. Above all, they need to be provided reasonable education and technical skills in the effort to raise their farm incomes. Moreover, an improvement in their technical skills would enable them to diversify their occupation. It merits emphasis that if concrete improvements for rural educational system do not to occur apace in the mountain areas, the rural labour force is bound to suffer further in the labour market.

CHAPTER VI

OUT-MIGRATION AND REMITTANCES

I. INTRODUCTION

The growing body of literature on migration provides some interesting insights into the strategies generally adopted by individuals, households or communities to improve their livelihoods. The theoretical debate relating to migration decisions is briefly analysed in Chapter I. The individual utility maximisation models of migration developed by Todaro (1969) and Hariss and Todaro (1970)—a logical extension of Lewis (1954) model—have been strongly crtiticised by most of the micro-level studies on migration in India. It is argued that the decision to migrate is not always based on wage differentials and the principle of utility maximisation. Rather it is necessitated by the need for most of the rural out-migrants to eke out their livelihoods—i.e. a survival strategy.

Unlike the Lewisian framework of transfer of labour from rural (traditional) to urban (modern) sector, labour migration takes a variety of forms—rural to urban, rural to rural, urban to rural and urban to urban, with varying degree of duration in India. The most common of these is a short duration migration of labour, the estimates of which vary considerably as between Population Census and NSS data. The NSS 55th Round has separately estimated for the first time the number of short-duration out-migrants (those who stayed away for a period between two to six months) in 1999-2000. It estimates about 10.87 million short-duration migrants during the period, of which 8.45 million were residents in rural areas. They constitute 2.1 per cent of rural employed persons and 1.3 per cent of urban employed persons (Srivastava and Sasikumar, 2003). On the other hand, the Population Census data records as low as 1.37 million short-duration migrants (less than one year) due to economic reasons in 1991 (Srivastava and Sasikumar, 2003). National Commission on Rural Labour (NCRL, 1991) estimated about 10 million seasonal/circular migrants in rural areas alone. A number of field studies carried out over the 1990s also provide rough estimates

of seasonal migration in different parts of India. These testify to the large scale of such migration (see Menon, 1995; Rogaly et al., 2001; Rani and Shylendra, 2001; Mosse et al., 2002).

Regarding the question of who migrates, data on individual migrants gleaned from micro surveys shows a significant clustering of migrants in the 16-40 year age-group (Connel et al., 1976). This is even more so in the case of poorer semi-permanent or temporary migrants (Srivastava, 1998). The propensity to migrate is high both among the highly educated and the least educated. Among the seasonal migrants there is a high preponderance of illiterate people (Connel et al., 1976; Rogaly et al., 2001).

Most migration literature makes a distinction between 'push' and 'pull' factors, which, however, do not operate in isolation of one another. Mobility occurs when workers in source areas lack suitable opportunities for employment/livelihood, and there is some expectation of an improvement in their economic condition in this regard through migration. The improvement sought may not only be in terms of better employment or higher wages/incomes, but also maximisation of family employment or smoothing of employment/income/consumption over the year. Earlier studies have shown that the propensity to migrate is higher among poor households (Connel et al., 1976; Oberai et al., 1989). This has been reconfirmed by more recent studies according to which migration is a significant livelihood strategy for poor households in several regions of India (PRAXIS, 2002; Mosse et al., 2002; Rogaly et al., 2001). At the same time there are evidences to suggest that the poorest often cannot afford to migrate since they have to contend with impediments to mobility such as poor education, want of finance, want of job information and urban contracts (Oberai and Singh, 1983; Singh and Karan, 2002).

Migration also affects the source areas through changes in the labour market, income and assets, changes in the pattern of expenditure and investment. Empirical evidences show that out-migration usually does not radically transform poor areas as the amount of remittances which these receive

is insufficient to ignite the production process therein (Srivastava, 1998; de Haan, 2000). Rather it may retard the overall development process and the whole social fabric due to the able-bodied male out-migrating in a large number in search of their livelihoods. This has been observed in the rural areas of the hill region of Uttaranchal where the net benefits from out-migration turn out to be negative (Bora, 1996). Similarly, out-migration does not lead to a tightening of the labour market (Connel et al, 1976; Srivastava,1998); instead, there is evidence of the replacement of out-migrant male labour by female and even child labour (Srivastava, 1998). It is observed that out-migration leads to a more diversified livelihood strategy. Combined with some increase in the income and employment portfolio of poor households, this may tend to push up the acceptable level of wages (reservation wages) in rural areas and may make certain forms of labour relationship (as for example, those involving personalised dependency) less acceptable (Srivastava, 1998).

Both the Population Census and NSS data on migration do not throw much light on the factors that condition out-migration and its effect on the household economy at the place of origin. The macro data hardly say anything about migration being a coping mechanism for rural households to maintain their livelihoods. Keeping in view our research objectives, in order to fill in this data hiatus, we collected information on out-migration from our sample households. Our purpose here is to contextualise migration as a livelihood strategy adopted by the rural households in the mountain region of Uttaranchal, and also to examine its impact on the place of origin, especially on household employment, incomes, production and population structure. Before making this analysis, it will be appropriate to define a migrant person/household and estimate the magnitude of out-migration in the sample households.

For our analysis, an out-migrant is a person who has been staying outside his/her village and did not share the same kitchen at the time of survey for more than two months. A migrant household refers to the household, which has at least one adult out-migrant member. A long-term migrant refers to a person who stays outside the household for the larger part of a year (more than eight

months). Similarly, a short-term migrant refers to a person who lives outside the household for two to eight months. A permanently migrated person refers to a person who has been earlier a member of the household but has permanently settled outside his/her native village along with some other household members (in most of the cases wife and children). However, he maintains links with his erstwhile household in his native village by sending remittances and making occasional visits, etc. Information has been collected about such persons from the sample households. A permanently migrated household is one that has completely shifted away from the village and does not maintain any links with the village. For understanding the dynamics of livelihood strategies of rural households, we have only concentrated on 'migration due to economic reasons' and thus excluded migration due to other reasons like marriage, illness, etc., in the entire analysis of migration.

II. OUT-MIGRATION IN UTTARANCHAL

1. Magnitude

Out-migration from the mountain region of Uttaranchal has been a common phenomenon, which is extensively studied in the past (see, Walton, 1928; Bedi, 1956; Whittakar, 1984; Dobhal, 1987; Khanka, 1988; Pande, 1996; Bora, 1996). The incidence of migration in these studies varies widely between 7 per cent (Pande, 1996) to as high as 24 per cent (Bora, 1996).

The different rates of out-migration are obviously due to different definitional criteria. In our sample, out-migrants constitute 14.8 per cent of the population. Migration from the state is male dominated, their share being nearly three-fourths (74.3 per cent) of the total migrants. This is similar to the findings of most of the studies on labour migration (Oberai and Singh, 1983; Khanka, 1988; Bora, 1996; Singh and Karan, 2002), which show that social restrictions seriously restrict the migration of female labour, particularly in north Indian states.

A distinguishing feature of out-migration in Uttaranchal is it being of a predominantly longer duration. In our sample, about 78 per cent of out-migrants are long-term migrants, who also include about 39 per cent permanently

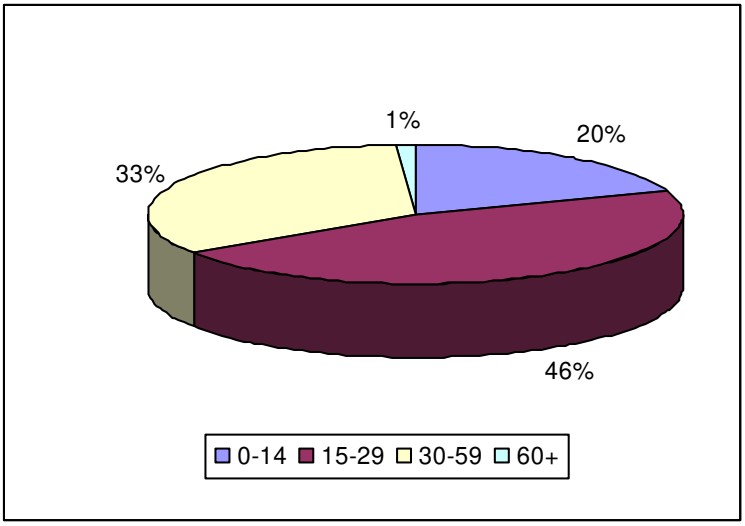
migrated persons (Table 6.1). This is contrary to the pattern observed in several micro studies which report the preponderance of short duration migration among the rural households—mostly of a circular nature (see Lieten and Srivastava, 1999; Breman, 1985, 1996; NCRL, 1991; Rogaly et al., 2001; Karan and Singh, 2002). This is mainly due to the fact that an overwhelming majority of out-migrants of Uttaranchal have salaried jobs which are generally of longer duration. Unlike rural out-migrants from Bihar or eastern Uttar Pradesh, they do not migrate to agriculturally prosperous regions for short-term employment (Mamgain, 2003).

Table 6.1
Magnitude of Out-migration

Duration	Male		Female		Person	
	Number	Per cent	Number	Per cent	Number	Per cent
Short-term	74	25.34	13	12.87	87	22.14
Long-term	146	49.99	8	7.92	154	39.19
Permanently shifted	72	24.65	80	79.21	152	38.68
Total	292	100.00	101	100.00	393	100.00
% share in sample population	20.95	-	8.04	-	14.83	-

Migrants are comparatively younger than the non-migrant population as about 46 per cent among them are youth (15-29 years). Nearly one-fifth among them are children (age-group 0-14 years) (Fig. 6.1).

Fig. 6.1
Age-wise Distribution of Out-migrants



Daily Commuters

With the improvement in transport services in the mountain areas in Uttaranchal, daily commuting to nearby *bazaars*/towns for work has become a regular activity among rural workers. This is a recent development in the rural areas in Uttaranchal, as is corroborated in a number of studies on labour commuting (Breman, 1996; Dupont, 1992; Dreze, 1997; Lieten and Srivastava, 1999). Daily commuters constitute about 17 per cent of the non-migrant rural workforce in Uttaranchal, which is mainly confined to male workers. About 37 per cent of the non-migrant male workers get employment through commuting daily to their work place in local *bazaars.* They are engaged in non-farm activities, mostly in construction related works and petty business.

2. Activity Status of Out-migrants

A look at the activity status of the out-migrant population of Uttaranchal shows that nearly 60 per cent of the out-migrants are working, another one-fifth are students and nearly 6 per cent are unemployed (Table 6.2). The Table also shows a significant difference in the activity status of migrant and permanently shifted persons—an overwhelming majority (nearly 80 per cent) of the migrants (both short and long-term) are workers whereas the majority (71 per cent) of those permanently shifted are students and housewives. This gives credence to our earlier observation that workers permanently shifted tend to shift in larger numbers along with their wives and children. In such migrations, the status of women generally changes from that of as worker to a non-worker as they were earlier engaged in agriculture related activities in their village.

Table 6.2
Activity Status of Out-migrant Population (Per cent)

Activity status	Migrants (both short and long-term duration)	Permanently shifted	Both
Worker	79.25	23.68	57.76
Unemployed	6.22	4.60	5.60
Student	9.96	37.50	20.61
Others*	4.56	34.21	16.03
Total	100.00 (241)	100.00 (152)	100.00 (393)

Note: 1. Figures in brackets are absolute number.
2. * Include housewives and pensioners.

3. Propensity to Out-migrate

The incidence of migration is fairly widespread across the sample households as nearly 42 per cent among them reported at least one out-migrant in their households. The propensity to out-migrate is greatly influenced by the socio-economic attributes of the households. As seen in Table 6.3, the propensity to out-migrate is highest among the upper caste households since more than half among them has at least one migrant, whereas it is least in the case of ST households. Nearly 30 per cent of the households belonging to SCs and OBCs also reported instances of migration. Similarly, the share of out-migrant population is more than double at about 20 per cent among upper caste households, as compared to households belonging to SCs and OBCs. Earlier studies (see for example Bora, 1996) also find high propensity of migration among upper castes.

The propensity to out-migrate is comparatively low among the landless households (about 21 per cent) than the land owning households as high (as 72 per cent). The share of the migrant population also ranges between as low as 6 per cent in landless households to as high as 27 per cent in the higher land owning households (Table 6.3).

The low propensity to migrate among landless, SC and OBC households could be attributed to their inability to bear the cost of migration—transport and waiting cost, and also to the fact that they do not (a) possess the necessary education and skills needed to enable them to benefit from migration and (b) have any city links.

While looking at the pattern of propensity to migrate among different income group households, it appears to be very high among the lowest income group households as well as among the middle-income group households, ranging between 50 to 54 per cent (Table 6.3). A similar pattern is observed in recent studies on migration (Singh and Karan, 2002). This validates the view that migration is a mere survival strategy for the low-income households, whereas for the relatively better-off households sending migrants is a part of their stabilisation strategy (Unni, 2000; Stark, 1991).

Table 6.3
Temporal Variation in Propensity to Migrate

Household type	Per cent of migrant	
	Households	Population
Land class (in acres)		
Landless	21.05	6.03
Upto 0.5	35.37	11.34
0.5 to 1.5	47.66	15.90
1.5 to 2.5	39.22	15.78
2.5 to 5.0	71.88	27.33
>5.0	66.67	7.41
Caste		
Upper caste	51.48	19.45
OBC	29.63	7.76
SC	29.41	8.24
ST	6.25	1.15
Number of occupations		
One	10.98	5.67
Two	42.65	15.43
Three	57.30	17.00
More than three	79.17	21.99
Distance from urban centres		
Peri-urban	26.89	10.45
Semi-interior	40.71	13.37
Interior	55.00	19.59
Area under commercial crops		
Nil	50.34	20.55
Upto 25%	49.59	14.22
25 to 50 %	18.18	3.49
Above 50%	29.51	11.87
Non-cultivating households	25.00	7.01
Per capita income class (Rs.)		
Less than 2500	51.28	19.29
2500 - 5000	34.09	10.72
5000 - 7500	32.93	11.88
7500 - 12500	54.55	17.84
12500 - 22500	50.00	21.54
22500 and above	40.00	16.29
Total	41.60	14.85

Diversification of livelihood sources is an important household strategy to maximise household income, and out-migration becomes an important channel for achieving this objective (see Ellis, 1998). This can be seen in Table 6.3. As households pursue more occupations, out-migration becomes a widespread

phenomenon among such households. The next Chapter will show that though diversification in occupations improves the household income, but undertaking larger number of occupations could just be a distress phenomenon, which do not lead to any substantive increase in household income.

Agricultural diversification (from crop production to fruits and vegetable production) is inversely related to the propensity to out-migrate. The households that witnessed moderate to high intensity of diversification also have the least tendency to migrate. On the other hand, as many as half the households in non-diversified areas have at least one out-migrant, and the migrant population of these areas, constitutes more than 20 per cent of their population (Table 6.3). A study by Badhani (1998) in Garampani area in Nainital also supports the finding that switching over to vegetable production not only improves the income levels of rural households but also considerably reduces the pace of out-migration.

Location of a village is also a determinant of the propensity to migrate. Bora's study (1996) also supports the finding that the propensity is almost half among the households situated nearer local markets/ urban centres (peri-urban villages) as compared with those situated in interior villages as the former provide employment opportunities, which are very limited in the interior villages.

Regression Results

In order to ascertain the factors which effect the probability of a persons to out-migrate from a household, we have fitted the following logistic regression model:

$$P(Y) = \frac{1}{1 + e^{-z}}$$

$$Z = b_0 + b_1x_1 + b_2x_2 + b_3x_3 + b_4x_4 + b_5x_5 + b_6x_6 + E;$$

Where
P = Probability of migration among household members
Y = Household with migrant workers = 1, otherwise 0
e = Base of natural logarithms

X_1 = Per capita land in a household (in acre)
X_2 = Percentage of principal workers in a household
X_3 = Percentage of educated persons in a household
X_4 = Per person agricultural income (Rs. '000)

X_5 = Dummy of caste of a household; 1 if a household belongs to Scheduled Caste', otherwise '0'
X_6 = Dummy of location of household; 1 if it is located near to urban centre, otherwise '0'
E_i = Residuals

Y indicates the probability of y occurring (i.e. the probability that a case belongs to a certain category). As such, the resulting value from the equation is a probability value that varies between 0 and 1. A value close to zero means that y is very unlikely to have occurred, and a value close to one means that y is very likely to have occurred.

The results of logistic regression are given in Table 6.4. The significant value of Chi-square ($p<0.0001$) shows that addition of the selected variables in the model is predicting the probability of migration significantly better than it was with only the constant included. The value of Nagelkerke R^2 is 0.23, which shows the explanatory power of the model. All the predicting variables except land size (per capita) are found to be statistically significant.

It is argued that if a household owns sufficient land (per capita), there is a comparatively lesser probability of migration of its members. The negative sign of per capita land, as seen in Table 6.4, typifies this phenomenon. However, the relation is found to be statistically insignificant. This is perhaps owing to preponderance of sub-marginal land holdings and abysmally low productivity of land among most of the rural households in the mountain areas of Uttaranchal, which rather perpetuates the tendency of out-migration.

The probability of out-migration among household members tends to increase significantly as the proportion of workers (principal) increases in a household. In other words, with the increasing number of workers in a household, the burden on household's land resource (agriculture) tends to increase, thus, leading towards a Lewesian situation of almost zero marginal productivity of additional workforce into it. The result is that household members diversify their livelihoods outside agriculture; and migration becomes an important channel, as employment opportunities within their villages are extremely limited.

The probability of out-migration of household members is found to be significantly higher among those households which have educated (high school and above) population (Table 6.4). The higher probability of out-migration among educated members of a household is mainly due to two factors as discussed earlier, i.e., strong preference of educated persons for non-manual salaried jobs, which are generally not available within or nearby their villages, and abysmally low productivity of agriculture and other household enterprises which could otherwise have induced them not to migrate out. In such situations, a household's strategy is to improve the educational levels of its members, particularly males, for securing better employment, mainly through migration channels.

Table 6.4
Results of Logistic Regression

Variable	β	Wald	Exp (β)
X_1	- 0.01	0.00	0.99
X_2	0.02**	15.95	1.02
X_3	0.02**	27.43	1.02
X_4	- 0.03*	4.77	0.97
X_5	- 0.59*	4.60	0.55
X_6	- 1.23**	18.35	0.29
Constant	- 1.43**	16.58	

Note: ** Significant at 1 per cent level of significance; * Significant at 5 per cent level of significance.

Our hypothesis gets further credence as probability of out-migration among household members is observed to be significantly less in households with higher per capita agricultural income as compared to those with low per capita agricultural income. As seen earlier in Table 6.3, incidence of migration is least among those households which could diversify their agriculture in favour of fruits and vegetable production on a larger degree, thus resulting in significant gain in their per capita income from agriculture.

Caste of a household also emerges one of the important variables in predicting the probability of out-migration. As can be seen in Table 6.4, the probability of out-migration is significantly less among household members belonging to Scheduled Caste groups as compared to those belonging to other

caste groups. The reason being that population belonging to Scheduled caste households is unable to bear the cost of migration due to their comparatively poor educational attainment and inability to bear the cost of migration. This point is discussed in later paragraphs in this Chapter.

It is also expected that households situated nearer to peri-urban centres offer relatively better employment opportunities, which, in turn, reduce the probability of out-migration. This is found to be statistically significant in our model.

It is worth to see the values of Exp. (β) in Table 6.4, which is an indicator of the change in Odds resulting from a unit change in the predictor. The Odds of an event occurring are defined as the probability of an event occurring divided by the probability of that event not occurring. The highest value of Exp (β) (1.02) for the variable, 'percentage of educated persons in a household' indicates that Odds of a household who has educated persons also having migrant workers are 1.02 times higher than those households who do not have educated persons. In other words, probability of migration among the educated persons is higher than those who are not educated. Similarly, probability of migration is 1.02 times higher among those households which have higher proportion of principal status workers.

Though Logistic Regression is appropriate technique in this case, and it has been carried here also. However, the interpretation of coefficients of Logistic Regression is not as straight forward as the coefficient in the case of Linear Regression model. This is because the Logistic coefficients have implications for Odds, as given in the values of Exp (β). Also, with the help of Linear Multiple Regression it is possible to ascertain the factors determining the intensity of out-migration. Therefore, for a simple interpretation, a multiple regression has also been carried out for the same set of independent variables as given in Table 6.4 with dependent variable being 'percentage of migrant workers in a household'. The results of the model are given in Table 6.5.

Table 6.5

Results of Multiple Regression

(Dependent Variable: Percentage share of migrant workers in a household)

Variable	β coefficient	't' value
Constant	12.07**	3.26
X_1	-6.71	-0.95
X_2	0.18**	2.95
X_3	0.30**	8.22
X_4	-0.47**	-3.48
X_5	-5.22*	-1.80
X_6	-15.92**	-5.71
$R^2 = 0.23$		

Note: ** Significant at 1 per cent level of significance; * Significant at 5 per cent level of significance.

A look at the values of β coefficients of multiple regression model in Table 6.5 also confirms the nature of impact as is observed in the case of Logistic Regression. Now it can be safely inferred that improvement in educational level of population among rural households in Uttaranchal significantly results in increase in the pace of out-migration. Similar is the case with the increase in the percentage of principal workers in a household. The negative sign of coefficient for the variable X_4 (per capita agricultural income) again confirms that improvement in per capita income in agriculture significantly reduces the pace of out-migration among the household members. The location of a household nearer to the peri-urban centres results in lower incidence of out-migration as compared to those households situated in interior and semi-interior areas. The lower propensity to out-migrate among households belonging to Scheduled Caste than other caste group is again reconfirmed by the results of multiple regression model.

4. Characteristics of Out-Migrant Workers

For the analysis of the process of migration and its impact on a household economy, we shall focus only on out-migrant workers in the following sections. In this section we will analyse the personal characteristics of the migrant workers since this is important from two points of view. First, it gives us an idea about the

determinants of migration. Second, it throws light on the influence of migration on livelihoods and the consequent impact on source areas.

There are total of 227 migrant workers in our sample, 97 per cent of which are males. The preponderance of males among migrant workers is a common feature as is also highlighted by studies on rural out-migration in Uttaranchal.

(i) Age

More than half the migrant workers are youth (in the age-group, 15-29 years). As can also be seen in Fig. 6.2, they represent nearly 55 per cent of the total male youth workforce of their village. At the time of migration, nearly 80 per cent of the migrant workers were in the prime age group of 15-24 years (Table 6.6). The mean age at the time of migration is 21.4 years, which shows that most of the migrants would be looking for gainful employment for the first time. Broadly speaking, mean age at the time of migration has marginally increased over the years (Fig. 6.3). This has been primarily due to the higher participation of population in the age group 15-19 years in education over the years.

Table 6.6

Age of Migrant Workers

Age group (in years)	Age at the time of migration	Age at the time of survey
Upto 14	1.93	-
15-19	29.63	3.96
20-24	50.01	20.70
25-29	16.23	26.87
30-34	2.20	13.66
35-39	-	11.89
40-59	-	21.59
60+	-	1.32
Total	100.00 (227)	100.00 (227)

Note: Figures in brackets indicate absolute number of migrant workers.

Since more than half the migrant workers are in the age-group, 15-29 years, it gives credence to our hypothesis that migration in rural areas of Uttaranchal accelerated during the 1990s. As can be seen in Figure 6.3, more than 57 per cent migrant workers migrated during 1990s. It is more pronounced in the case of SC migrant workers, as three-fourths of them migrated during the

1990s. In the case of upper caste migrant workers, nearly 20 per cent migrated even prior to 1980. The sharp increase in out-migration of workers across all age groups during the 1990s is in consonance with the findings of a recent macro study (Srivastava and Bhattacharya, 2002), which corroborates this trend during the decades. The accelerated pace of migration among the sample households during the 1990s also indicates the deteriorating employment opportunities in economically backward mountain region of Uttaranchal, which like other poor regions could hardly benefit from the ongoing programme of economic reforms. The latest Population Census, 2001, as seen in Chapter III, also confirms the absolute decline in the number of main workers during the1990s in Uttaranchal.

Fig. 6.2

Percentage of Male Migrant Workers in Total Male Workforce

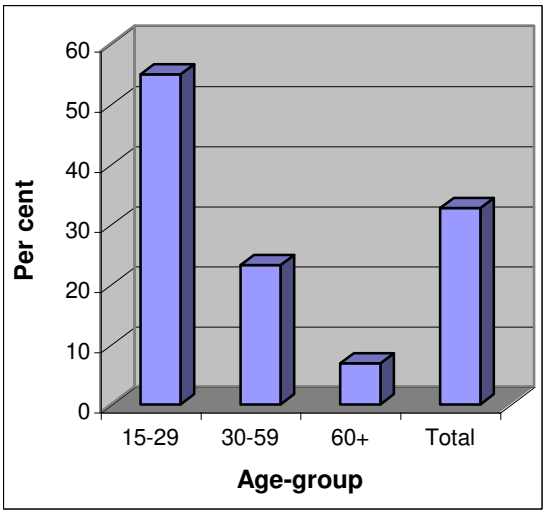
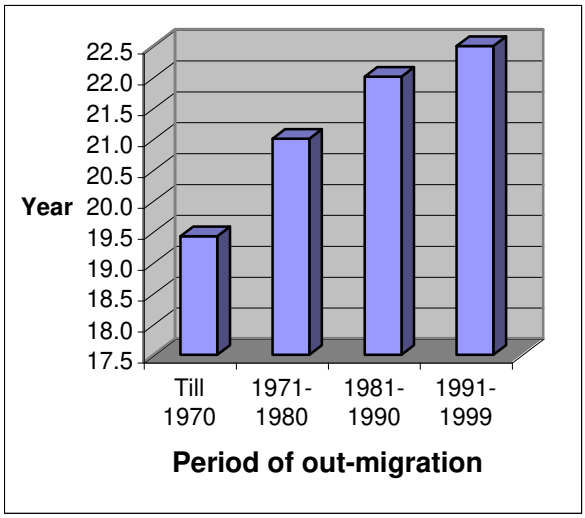


Fig. 6.3

Average Age at the Time of Migration



(ii) Educational Level

One of the most consistent findings of rural-urban migration studies is that migrants are relatively better educated than those who remain behind at the source place. This is true for Uttaranchal (Table 6.7). About 47 per cent of migrant workers have passed the high/higher secondary school examination, more than one-tenth among them are graduates and another 5.3 per cent are technical degree/diploma holders. Thus, in all nearly 63 per cent of the migrant workers are educated. In sharp contrast, the percentage of educated non-migrant workers is even less than one-fifth. In other words, the propensity of workers to

migrate tends to increase significantly with the improvement in their educational level. This becomes clear when we look at the percentage of male migrant workers at each level of education (Table 6.8). As against 2 per cent migrants among illiterate workforce, there are 24 per cent, 35 per cent, 47 per cent and 52 per cent among those with middle, high school, higher secondary and technical education, respectively. However, the proportion of graduate migrants is comparatively low at 27.5 per cent. The high propensity to out-migrate among the educated is attributed to their better awareness and greater resourcefulness on the one hand and also the prospects of better earnings after migration.

Table 6.7
Educational Level of Migrant and Non-migrant Workers (Per cent)

Educational level	Migrant workers	Non-migrant workers
Illiterate	2.61	34.21
Below primary	0.44	7.80
Primary	8.37	19.93
Middle	25.99	19.45
High school	25.99	10.20
Higher secondary	21.15	4.20
Graduate and above (general)	10.13	3.36
Technical degree/diploma/certificate	5.29	0.84
Total	100.00	100.00

Table 6.8
Propensity to Migrate by Educational Level

Educational level	% share of migrant workers in total workers
Illiterate	2.06
Below primary	1.52
Primary	8.11
Middle	23.98
High school	34.72
Higher secondary	46.99
Graduate and above (general)	27.45
Technical degree/diploma/certificate	52.63
Total	17.74

It may be noted here that an overwhelming majority of migrant workers had no skills at the time of migration, which could have otherwise helped them in securing better employment.

There is an acute imbalance in the educational levels of migrants belonging to different castes—the proportion of educated being three-fourths among Brahmins and more than 60 per cent among Rajput migrant workers as compared to just 46 per cent among SCs. This also shows that while it is possible for few illiterates belonging to upper castes to out-migrate, this is not the case with other castes, particularly, the SCs. The comparatively low educational attainment among migrant workers belonging to SCs also means that their earnings from out-migration are relatively low.

(iii) Activity Status at the Time of Migration

At the time of their migration, a fairly large percentage (35.2 per cent) of migrant workers were students. More than one-fourth migrant workers were unemployed, though, most of whom were helping their households in cultivation and animal husbandry activity. Thus, the remaining 37 per cent were employed—25.1 per cent in agriculture and allied activities, and 5.7 per cent each in casual employment and in regular salaried jobs (Table 6.9).

Table 6.9
Activity Status of Migrant Workers at the Time of Migration

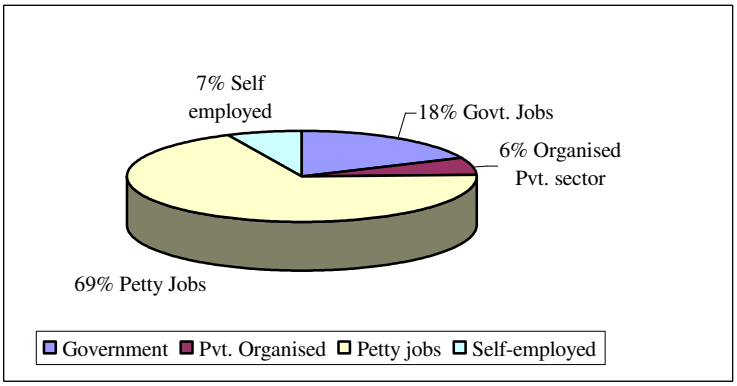
Activity status	Total
Self-employed in agriculture & allied activities	25.11
Casual labour	5.73
Self-employed in non-agricultural activities	0.88
Salaried jobs	5.73
Unemployed	27.31
Student	35.24
Total	100.00

(iv) Present Activity Status

Another distinguishing feature of out-migrants is that an overwhelming majority among them are salaried workers—93 per cent are salaried persons and remaining are self-employed in non-farm activities. The largest percentage (nearly 60 per cent) of migrant workers are employed in petty jobs like domestic servants, cooks, wash boys, room boys, waiters, peons, messengers, drivers,

helpers in informal manufacturing and service units, which are by nature unprotected, highly flexible, low paid and lack social security measures (Fig. 6.4). The pattern broadly conforms with the theoretical framework of migration whereby most of the migrants first are absorbed in low paid informal sector jobs (Papola, 1981) where they gain the required experience to enable them to move up the ladder or to find white collar jobs in the formal sector. It would be in order here to cite the example of a migrant who finds a job of a washboy in a peculiar small restaurant in some city or metro and then he gradually improves his skills to become a cook, waiter, and restaurant manager. Later, he could be absorbed in the formal sector. More than one-third of migrant workers are employed in organised sector—19 per cent are in government jobs and most of them are employed in armed and paramilitary forces.

Fig. 6.4
Present Activity of Migrant Workers



While looking at the activity status of migrant workers, both at the time of their migration and present one, it appears that most of the migration from Uttaranchal is not a 'distress-induced'. Migration has a significant positive impact on the employment status of migrant workers at least in terms of providing regular salaried jobs to a majority of them for a longer duration.

(v) Destination of Migrant Workers

More than three-fourths (77.2 per cent) of the migrant workers migrate to regions outside the mountain region of Uttaranchal. Though they are spread across

various parts of the country (mostly true in the case of those employed in defence and paramilitary jobs), they are mainly concentrated in cities like Delhi, Mumbai, Lucknow, Chandigarh, Ambala, etc. The remaining one-fourth of the migrant workers are spread over the hill region in Uttaranchal—most of them are in cities like Dehradun, Nainital and in district/ block headquarters. Some of them who remain in the villages, are in the government jobs. Of late their number increased significantly with the spread of education, health and other developmental schemes within the villages.

Interestingly, a comparison of educational level of migrant workers shows that those who migrate within the mountain region posses higher educational levels compared to the others. This could be attributed to the fact that many of the migrant workers who migrate within the mountain region are in government jobs.

(vi) Causes of Migration

There are several causes of migration, the nature of which predominantly depend on the conditions prevailing in a household or a region. The causative factors are generally categorised into two groups in Lee's (1966) framework, viz., push and pull factors. In the context of the mountain region in Uttaranchal, 'push factors' predominate the decision to migrate since most of the households have marginal land holdings with abysmally low levels of farm income—mainly attributed to traditional farm practices and increasing population pressure. More than half the migrant workers migrated due to poor asset base and low levels of household incomes. Another 10 per cent migrated, as they were unemployed. Thus, more than 60 per cent migration is simply caused by 'push factors'. One of the important strategies adopted by the risk averting households is to improve the educational levels of their members, mainly males, so that they are able to secure remunerative employment outside the household. This is why 8.4 per cent of migrant workers migrated first for improving their educational levels. Nearly 15 per cent of the workers migrated in anticipation of better economic prospects in the cities. Personal/social contacts also play an important role in promoting such

kind of migration. Another 10 per cent migrated due to their job transfers and/or because they got other jobs. Thus, nearly 40 per cent migration has been due to 'pull factors'.

The analysis of the reasons of migration across various income groups of households shows that migrants from low income-group households migrate owing to their poor economic conditions whereas a comparatively larger percentage among those belonging to higher income strata do so for their educational enhancement and better economic prospects. Thus, while migration is predominantly a coping strategy in the lower income group households, it helps to avert risk and accumulate capital for most of the upper income group households. This is a stabilisation goal of livelihood diversification (Table 6.10).

Table 6.10
Reasons of Migration by Per capita Income Class (Per cent)

Reason	Per capita annual income class (Rs.)						
	Less than 2500	2500 - 5000	5000 - 7500	7500 - 12500	12500 - 22500	22500 and above	Total
Poverty, low income and family indebtedness	83.87	68.33	28.95	39.62	43.24	0.00	50.66
Unemployment	0.00	3.33	10.53	18.87	18.92	25.00	11.01
Education	0.00	0.00	10.53	9.43	16.22	50.00	8.37
Got job/transfer	6.45	10.00	5.26	11.32	8.11	12.50	8.81
Better economic prospects	9.68	16.67	34.21	13.21	5.41	0.00	15.42
Persuaded by friends, relatives	0.00	1.67	7.89	3.77	2.70	0.00	3.08
Family tension	0.00	0.00	2.63	3.77	5.41	12.5	2.64
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Number of migrant workers	31	60	38	53	37	8	227

Similarly, push factors predominate among the migrants with low level of education as compared to their counterparts with higher levels of education (Table 6.11).

Table 6.11
Reasons of Migration by Level of Education (Per cent)

Reason	Illiterate	Middle school and below	High/Higher secondary school	Graduate and above	Technical degree/diploma	Total
Poverty, low income and family indebtedness	83.33	65.82	53.27	4.35	0.00	50.66
Unemployment	0.00	7.59	10.28	30.43	8.33	11.01
Education	0.00	5.06	3.74	26.09	41.67	8.37
Got job	0.00	2.53	3.74	34.78	50.00	8.81
Better economic prospects	16.67	13.92	21.50	0.00	0.00	15.42
Persuaded by friends	0.00	2.53	3.74	4.35	0.00	3.08
Family tension	0.00	2.53	3.74	0.00	0.00	2.64
Total	100.00	100.00	100.00	100.00	100.00	100.00
Number of migrant workers	6	79	107	23	12	227

III. IMPACT OF MIGRATION ON RURAL HOUSEHOLDS

An important issue that needs to be addressed is: has the migration been beneficial to the households in ameliorating their economic well-being? The classical development models (Lewis, 1954; Fei and Ranis, 1964) firmly believe that out-migration increases rural incomes, land size and labour productivity, and the standard of living through transfer of resources, which of course is countered by studies on migration. In the case of Uttaranchal where migration is widespread among rural households, some studies termed the mountain economy of the state as 'money order economy' (Dobhal, 1987; Dhyani, 1994). The following section examines the impact of migration on rural household economy in mountain region of Uttaranchal.

1. Remittances

Remittances, or the transfer of cash or other resources from migrants to their kin at their rural place of origin, play an important role in family linked migration process in developing countries (Tisdell, 1990; Stark, 1991). They are often the reason for migration as well as an important consequence of the migration process. It is, therefore, important to know to what extent migration could help in ameliorating the overall economic well being of the sample households. As observed in Chapter VII, remittances contribute a substantive share of about

one-fifths of income of migrant households. However, propensity to remit significantly varies among the migrants belonging to different socio-economic strata.

Propensity to Remit

It is observed that about 61 per cent of migrant workers send remittances as can be seen in Table 6.12. The propensity to remit is least among the permanently migrated workers as only 36 per cent among them send remittances as compared to 63.8 per cent migrant workers.

It is found that younger migrants remit in comparatively lesser proportion compared to the older migrants—about half the migrant workers in the age group, 20-24 years remit, whereas nearly two-thirds in the age group 30-59 do so. This can be attributed to the fact that the new migrant workers take some time to settle and acquire the requisite skills and experience, to enable them to increase their income, thus making it possible for them to send remittances. Accordingly, those who migrated earlier have higher per capita earnings than those who did so recently and thus the propensity of the former to remit is higher than that of the latter (Table 6.12). The average amount of remittance per remitting migrant also increases substantially with the increase in the duration of migration.

The propensity to remit generally does not vary among the migrants belonging to different educational groups except for those who are graduates and non-matriculates. As seen earlier, more than three-fourths of below matriculate migrant workers are the recent migrants who largely come from SC households. Their earning levels are expected to be comparatively low, and so is their propensity to remit. As against this, per worker income of graduate migrant workers is likely to be the highest, but only 35 per cent among them remit their earnings. Notably, tendency to migrate permanently is strong among graduate migrant workers as 39.1 per cent of them are permanently migrated, while it is about 13 per cent among other workers.

Table 6.12

Temporal Variation in Propensity to Remit

Characteristic of migrant worker	% of migrants remitting	Average annual amount of remittance (Rs.)
Caste		
Brahmin	48.05	9457
Rajput	64.89	8880
OBC	71.43	14800
SC	62.50	6840
ST	100.00	20000
Per capita income class (Rs.)		
Less than 2500	46.88	2420
2500 - 5000	57.63	5712
5000 - 7500	67.50	6974
7500 - 12500	65.38	11618
12500 - 22500	51.43	16000
22500 and above	66.67	14833
Age		
15-19	33.33	1100
20-24	51.06	4508
25-29	59.02	6453
30-59	63.55	11926
60 and above	100.00	12000
Level of education		
Illiterate	66.67	8675
Middle school and below	53.16	7105
High/Higher Secondary school	66.36	8362
Graduate and above	34.78	17125
Technical degree/diploma	75.00	14111
Annual earnings of migrant workers (Rs)		
24000 and below	43.06	2619
24000-60000	71.29	7739
60000-96000	74.19	18278
Above 96000	66.67	16500
Marital status		
Unmarried	42.62	7073
Married	64.85	9356
Widow/Widower	100.00	5800
Year of first migration		
Till 1970	91.67	13636
1971-1980	66.67	16317
1981-1990	70.91	8236
1991-1999	52.80	6453
Duration of migration		
Permanently shifted	35.90	6029
Short and long-term	63.83	9220
Destination of migration		
Within region	78.00	13038
Outside region	56.21	7182
Total	61.19	8887

The reasons for not remitting among the migrant workers may be three fold: (i) sufficient household income at their source place to meet the basic requirements; (ii) very low earnings of migrant workers making it difficult for them to save any amount for remitting money, as is the case with most of the newly migrated workers who do not remit; and (iii) inclusion of family members among the migrants thus prompting migrant workers to reduce the proportion as well as frequency of remittances—this applies to those migrant workers who are better educated and have comparatively higher income levels.

Similar to the propensity to remit, the average amount of remittance per remitting migrant is highly influenced by the period of migration, marital status, level of education and income, etc. On an average, a migrant sends a remittance of Rs. 8887 in a year. Caste-wise, the annual amount of remittance per migrant worker is the lowest at Rs.6840 among the SCs. It is lowest at Rs. 1100 among the youngest migrant workers and the semi-literate migrants, respectively (Table 6.13).

Thus, in a situation where nearly 70 per cent of migrant workers are in low-paid petty jobs, more than one-third are semi-literate and most of them are unskilled, the overall earnings and remittances of migrants are extremely low, despite the high propensity to remit.

2. Impact of Remittances on Household Income

The extent to which migration could help to augment household income deserves to be examined. Table 6.13 presents data on increase in the household income as also per capita income among the migrant households due to remittances. It is evident that remittances raise the average income of migrant households by about 26 per cent. They are particularly crucial in poor and relatively low income group households as they increase their income by nearly 50 per cent and 38 per cent respectively. If we include the income from pension, which of course is income largely from return migration, the household income rises by nearly 40 per cent. It can also be seen in Table 6.13 that income through pension help

households to improve their income levels significantly, particularly among middle-income strata.

Table 6.13

Average Increase in Annual Income Levels among Migrant Households (Rs.)

Per capita annual income class (Rs.)	Per household income (Rs.)		Per capita income (Rs.)		Percentage increase due to	
	Excluding remittances	Including remittances	Excluding remittances	Including remittances	Remittance	Remittance and pension
Less than 2500	8930	13388	1480	2219	49.92	49.92
2500 – 5000	19159	26408	3208	4422	37.84	51.70
5000 – 7500	26426	36083	5692	7772	36.54	60.28
7500 – 12500	50147	63384	9338	11803	26.40	52.37
12500 – 22500	133959	150809	15760	17742	12.58	18.97
22500 and above	114152	127735	26343	29478	11.90	13.69
Total	35778	45055	6373	8025	25.93	39.79

3. Use of Remittances

The use pattern of the remittances is an important aspect of the impact of migration on the economy of migrant's native household. Since inadequate income in the village is a predominant motivation to out-migrate, it is not surprising to find that more than 60 per cent of the remittance amount is used to meet the daily consumption requirements of the households (Table 6.14). The second highest share (more than 10 per cent) of remittance income is spent on the education of children, which is generally given a high priority among the mountain communities in Uttaranchal as it helps them to migrate for seeking a job outside the region. Another 9 per cent of the amount of remittance is spent on the payment of wage labour, which the households hire mostly for agricultural works—ploughing and repair of land holdings, etc.—as their male members having migrated are not available. Nearly six per cent of the remittance amount is spent on consumer durables, mostly on housing and another 5.2 per cent and 4.3 per cent are spent on illness and social ceremonies, respectively.

Table 6.14
Use of Remittances

Household group	Use of remittances (per cent)							Total
	Daily consumption	Education	Illness	Household assets	Marriage	Wage payment in village	Others	
Land class (in acres)								
Landless	100.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Upto 0.5	73.81	9.52	7.14	4.76	0.00	2.38	2.38	100.00
0.5 to 1.5	58.14	13.95	0.00	9.30	4.65	11.63	2.33	100.00
1.5 to 2.5	50.00	10.00	20.00	0.00	20.00	0.00	0.00	100.00
2.5 to 5.0	62.50	4.17	4.17	0.00	8.33	20.83	0.00	100.00
Caste								
Brahmin	68.57	0.00	5.71	2.86	14.29	8.57	0.00	100.00
Rajput	54.39	14.04	7.02	8.77	1.75	10.53	3.51	100.00
OBC	65.00	25.00	0.00	10.00	0.00	0.00	0.00	100.00
SC	76.92	11.54	0.00	0.00	0.00	3.85	7.69	100.00
ST	0.00	0.00	0.00	0.00	0.00	100.00	0.00	100.00
Per capita income class (Rs.)								
Less than 2500	71.43	7.14	7.14	7.14	0.00	0.00	7.14	100.00
2500 – 5000	75.76	9.09	3.03	9.09	0.00	0.00	3.03	100.00
5000 – 7500	61.54	7.69	7.69	0.00	7.69	15.38	0.00	100.00
7500 - 12500	51.72	10.34	6.90	3.45	3.45	20.69	3.45	100.00
12500 - 22500	50.00	18.75	0.00	6.25	12.50	6.25	6.25	100.00
22500 and above	30.00	0.00	0.00	30.00	40.00	0.00	0.00	100.00
Total	62.21	10.76	5.20	5.87	4.29	8.94	2.73	100.00

The pattern of use of remittances varies substantially across the different types of households. The Scheduled Castes, landless and ultra marginal land holding households and low-income group households spend about three-fourths of the remittance amount on the purchase of daily consumption items. Thus, these households are left with a meagre amount for investing in the education of their children and other household durables. On the other hand, households belonging to comparatively higher income groups use a proportionately larger amount of remittances for the education of children, productive household assets and social ceremonies. As can be seen in Table 6.14 the availability of cultivated land increases the prospects of remittances being used for the education, healthcare and building of durable assets like houses as it provides food security

to such households for a few months in a year. A similar pattern emerges from the income group of households.

Thus, remittances mostly fulfil the cash needs of the rural households for basic household items such as cereals, pulses, kerosene, clothes, slat, sugar, soap and so on. Although one could argue that increased consumption resulting from the use of remittances could stimulate the rural economy as suggested by Connel and Conway (2000), this is not likely to be significant because a large proportion of cash is likely to be spent on the goods which are not produced locally. Hence, the contribution of remittances towards improving agriculture and increasing investment in rural areas seems to be very limited in mountain districts of Uttaranchal. A similar observation has been made by Regmi and Tisdell (2002) in the context of the use of remittances in Nepal. Papola (2002) also sees a limited role of remittances in accelerating the process of investment and economic development in mountain economies in general.

This underscores the need to develop local resource base through active government support for creating gainful employment opportunities in the mountain districts of the Uttaranchal. Also equally important is to improve the education and skill level of the potential labour force in the region, to enable it to enhance its earnings in the competitive labour market—both outside and inside their regions. This would require restructuring and over-hauling of the present education system, particularly immediately after the middle schooling, with greater orientation towards mountain specific vocational education and training.

4. Gains in Per Capita Income

Significantly, migration increases the per capita income of migrant workers, which more than compensates for any loss of earnings due to their migration (Table 6.15). In fact, 36 per cent migrants witnessed eight-fold and higher income increase in their incomes. Another 17 per cent experienced an increase of five to eight times. Obviously, the increase in incomes of the migrants has been far more in the case of educated migrant workers. It is worthy to observe that more than three-fourths migrants belonging to interior and low income group

households witnessed five-fold increase in their income. This itself explains the prevailing low per capita income in interior villages.

Table 6.15
Income Difference due to Migration

Household type	Range of difference (%)							No. of migrant workers
	Upto 100	100-200	200-300	300-500	500-800	800+	Total	
Distance from urban center								
Peri-urban	7.50	12.50	22.50	22.50	10.00	25.00	100	47
Semi-interior	13.51	14.86	12.16	20.27	14.86	24.32	100	87
Interior	2.50	5.00	7.50	10.00	22.50	52.50	100	94
Per capita income class (Rs.)								
Less than 2500	0.00	0.00	5.26	5.26	21.05	68.42	100	22
2500 - 5000	0.00	6.12	6.12	6.12	20.41	61.22	100	57
5000 - 7500	12.12	15.15	6.06	18.18	24.24	24.24	100	39
7500 - 12500	10.00	10.00	16.00	22.00	18.00	24.00	100	59
12500 - 22500	3.33	16.67	20.00	36.67	6.67	16.67	100	35
22500 and above	38.46	15.38	30.77	0.00	0.00	15.38	100	15
Total	7.73	10.31	12.37	16.49	17.01	36.08	100	227

5. Contribution to Household Employment

Migration has helped the households in at least providing regular employment. As seen in Chapter V (Table 5.4), it contributes to the extent of nearly 18 per cent of total employment (principal plus subsidiary status) and nearly one-fourth of male employment to rural households. If we consider only principal status workers, migration alone contributes about one-third of male employment to the rural households. Migration has also significantly changed the occupational profile of workforce as it contributes about 42 per cent of non-farm employment to rural households in Uttaranchal (Table 5.4 in Chapter V).

6. Impact of Migration on Farm Employment and Output

Migration has helped in unleashing the pressure of labour force on agricultural land. This can be seen in relatively lesser use of labour (per acre) in agriculture among migrant households as compared to non-migrant households (Table 6.16). This type of withdrawal of labour force from agriculture, however, could not help households to improve their output (per personday) to any significant extent. In fact, per personday output of migrant households from agriculture is

low at Rs. 43 as compared to Rs. 50 that for the non-migrant households. This pattern is moreover consistently similar across the different scenarios of agricultural diversification. In fact, it also emerged prominently in Table 6.5 that low level of farm output per person is one of the significant factor which forces households to send some of their labour force outside their village to seek livelihoods.

Table 6.1

Labour Use and Output among Migrant and Non-migrant Households

Degree of diversification	Per acre labour use (Persondays)		Per personday output (Rs.)	
	Migrant	Non-migrant	Migrant	Non-migrant
Nil	214	267	32	33
Upto 25%	244	235	49	46
25 to 50 %	203	319	52	68
More than 50%	158	246	67	73
Average	219	262	43	50

7. Effect on Age and Sex Composition

Selectivity of out-migration in terms of sex, age and education obviously affects population and labour force adversely. Absence of many young men from the villages results in an increase in the proportion of other groups, namely, women, children, or the old in the population. Thus, out-migration results in denudation of population equipped with such qualities as skills, education, entrepreneurship and a beacon of new orders.

The generally higher incidence of out-migration in mountain region of Uttaranchal, characterised by a high degree of sex selectivity and a predominantly long duration, has raised the sex ratio (1044 females per thousand males) as compared to other regions/states in the country—a fact which also features in the latest Population Census 2001. It is highest in the working age group, 15-59 years, as seen earlier in Chapter III. Table 6.17 on sex composition of workers reinforces the effect of migration of male workers. Overall, there are more women than men. This phenomenon is more pronounced in agriculture and animal husbandry where sex ratio shoots up to 3881 females per thousand

males in the case of principal status workers and that to 2415 in the case of both principal and subsidiary status workers. It tends to confirm our earlier observation that the mountain agriculture is largely a women's preserve, as more than 70 per cent of women workers are engaged in this activity.

Table 6.17

Sex Ratio among Non-migrant Workers in Different Occupations

Occupation	Number of workers		Sex ratio	
	Principal status	Principal plus subsidiary status	Principal status	Principal plus subsidiary status
Agriculture and animal husbandry	531	806	3881	2415
Self-employed in non-farm activities	113	113	97	97
Regular salaried workers	69	69	117	111
Casual wage labour	162	203	361	318
Total	875	1191	1232	1142

The low birth rate in mountain districts of Uttaranchal may partly be due to high incidence of male migration as the separation of husbands from wives during the crucial life-cycle phase, when couples are fertile and economically active, may have the palpable effect of lowering the completed family size.

IV. RETURN MIGRATION

An important aspect associated with the migration of workers from the state is the tendency among the migrants to return to their native village/place after working for a considerably long period. It has been generally termed as longer duration migration with its circular characteristics. Thus, the short duration circular migration (less than one year) is generally not considered as return migration. This type of return migration has its own implications for an economy—both progressive and/or regressive—which ultimately shape the pattern of their livelihoods. Increasing attention has been given to understand the characteristics of returned migrants. It has often been assumed that returned

migrants were largely those who had failed to adapt to the conditions at the place of migration. As Chi and Bofan (1974) found, many of them returned for family reasons but others did so because they had acquired skills that enabled them to benefit by returning to the place of origin. It has also been observed that the lack of social and old age security compels some migrants to maintain a rural link in case they ever need or desire to return to their place of birth (Bora, 1996; Duraisamy and Narasimhan, 2000). Economic downturn caused by financial crisis also forces workers to return to their native villages as many industries close or reduce their operations. The recent East Asian economic crisis is a testimony of the major job losses in the urban sector and agriculture becoming the last resort for many young as well as old workers, mostly unskilled and semi-skilled, in countries like Thailand and Malaysia (Mazumdar, 2000). The process of economic reforms in India, which was initiated in 1991, also made it necessary for enterprises to restructure themselves to remain competitive in the market. The emphasis on rightsizing of enterprises has resulted in the growing retrenchment of workers, particularly in the form of voluntary retirement. Also, closure of many sick enterprises led to job losses in the organised sector and the affected workers taking refuge in the unorganised sector, with a larger proportion taking agriculture as a source of livelihood. Datta (2001) finds that many workers, who opted for voluntary retirement, had in fact taken to agriculture in their native villages. It is also argued that most of the returned migrants go back to the village for family reasons, but the better-educated and successful migrants normally do not do so. Bora (1996) and Whittakar (1984) maintain that the bond with those left behind and the attachment to ancestral property and the village community, are the factors that prompt them to return. The present study finds a growing failure of outside labour market to provide remunerative employment to the migrants, which is insufficient to meet the minimum needs of their own and of those who are left behind. In other words, the opportunity cost of migration should be least.

1. Magnitude and Characteristics

For our analysis, a return migrant is a person who returns to his native village after working for a larger period (at least for more than 5 years) outside his village. According to this criterion, there are 103 returned migrants in our sample, who constitute 4.12 per cent of the sample population—all being males. Like the out-migrant population, the percentage of return migrants is high among upper caste households, being more than 5 per cent of their sample population.

One of the important features of return migration in Uttaranchal is that a very large percentage (about 83 per cent) of these migrants are in the working age group of 20-59 years--- alone 43.7 per cent being in the age-group 20-39 years. About 15 per cent of them are in the age group 20-29 years (Table 6.18).

Table 6.18

Percentage Distribution of Return Migrants by their Age

Age-group (years)	Present age	Age at the time of return
20-24	8.74	18.44
25-29	6.80	18.42
30-34	16.50	19.45
35-39	11.65	15.53
40-59	42.72	13.59
60 & above	13.59	14.56
Total	100.00	100.00
Number	(103)	(103)

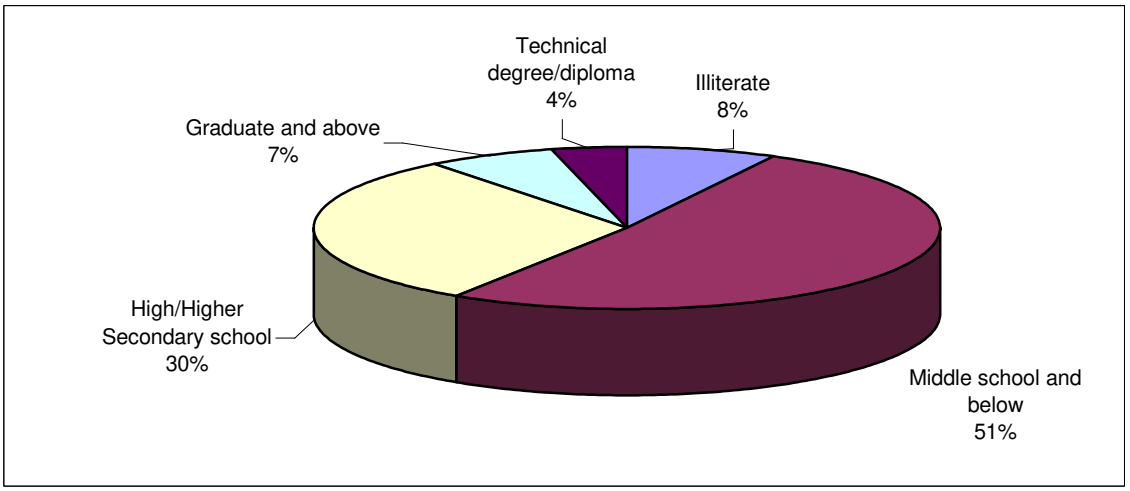
It is revealing that the nearly 37 per cent of return migrants in the age group, 20-29 years returned to their native villages. More than one-third returned at the age of 30-40 years and about 15 per cent returned after attaining the retirement age of 60 years (Table 6.18). As there is a sizeable number of out-migrant workers serving in military and para-military forces in Uttaranchal, due to the early retirement age in such jobs, many among them return to their villages to lead rest of their life. They also seek employment in the local job markets but many of them are unable to find other jobs after their retirement.

More than half the returned migrants have had their schooling just upto the middle standard (Fig. 6.5). Their low educational levels perhaps reflect their

low levels of income which deter them from settling down permanently. Also, their low educational profile has adversely affected their employability in the labour market that exists mostly outside their village.

Fig. 6.5

Educational Level of Return Migrants



2. Reasons for Return

Retirement is the major reason for the return of nearly half of the migrants. The process of restructuring of enterprises and consequent closures of these in the current phase of economic reforms in the country have also had a major adverse impact on the out-migrants of the hill region of Uttaranchal as more than one-fifth of them lost their jobs, mostly during 1990s. The low income of migrant workers coupled with high cost of living at the place of migration has been a major cause for the return for about 14 per cent return migrants. It is their low levels of income, which rather made it difficult for them to sustain themselves and the families they left behind. Family compulsions as a reason of return is also strongly linked with the low income levels. Thus, nearly 30 per cent return migration was due to the low-income levels of the migrants. Thus, insufficient income, family compulsions and retrenchment were the predominant reasons for the return of the migrants in the age-group, 20-29 years. Such return migrants were doubly disadvantaged in terms of their low income and limited experience on the job—both of which seriously hampered their competitiveness in the

outside labour market, forcing them to depend on subsistence agriculture which provided them some temporary relief. As the migrant workers stay out for a longer period, their income levels tends to improve. However, the loss of jobs due to retirement was the major reason for the return for about one-fourth of return migrants in the age group, 30-39 years. As is seen in Table 6.19, more than half the return migrants in the age group, 30-39 years came back to their villages after retirement. Most of them were in the armed forces and retired at a young age due to the service requirements. What is more important is the fact that all the able bodied return migrants join the local labour market in their villages for sustaining their livelihood. This point is discussed in the following paragraph.

Table 6.19

Reasons for Return

Age at return (years)	Reason for return					Total
	Retired	Retrenched	Insufficient income	Family compulsions	Others	
20-29	0.00	36.84	34.21	26.32	2.63	100.00
30-40	55.56	25.00	2.77	13.89	2.78	100.00
40 and above	100.00					100.00
Total	47.57	22.33	13.59	14.56	1.94	100.00

3. Present Occupation

Table 6.20 provides the information about the present occupation of return migrants, most of whom were in salaried jobs prior to their return. Nearly one-fourth of return migrants are working in farm sector, mainly as cultivators. About two per cent of them are earning their livelihood from agricultural labour (mainly as *halwahas*). Although there is a large number of pensioners among the return migrants, almost all among them are engaged in cultivation and animal husbandry. Thus, agriculture and allied activities act as a sponge for more than half the return migrants. Notably, about one-fifth of the return migrants are self-employed in petty trade. It is observed later in Chapter VII that self-employed in trade and business not only have the potential to provide gainful employment to other workers, but also highest per worker earning as compared to other activities. It is pity that nearly 13 per cent of return migrants are dependent for

their livelihood on casual wage labour, mostly non-agricultural and do works like *coolies*, working at construction sites, etc. They are largely underemployed though not like those engaged in cultivation. Some of them are also engaged in multiple activities, which help them in augmenting their income. Thus, the economic situation of a majority of return migrants is even more precarious than was the case earlier and they suffer from the syndrome of high incidence of underemployment and low income. Moreover, they are unable to migrate out again, as most of them are semi-skilled and aged, the demand for whom is very limited in the outside labour market. Therefore, there is a need to give top priority to local resource-based development in the plans of the new state, which has good potential for providing productive employment opportunities.

Table 6.20
Distribution of Return Migrants by their Present Occupation (Primary)

Occupation	Number	Per cent
Cultivation and animal husbandry	24	23.31
Wage labour	13	12.62
Salaried jobs	9	8.73
Trade & business	20	19.42
Unemployed	4	3.88
Pensioners	30	29.13
Disabled & others	3	2.91
Total	103	100.00

V. CONCLUSION

Out-migration among the rural households in the mountain region of Uttaranchal is increasingly becoming an important livelihood strategy as nearly 42 per cent sample households have at least one migrant worker, which is definitely very high. The propensity to out-migrate, however, differs significantly across different categories of households. It is higher among land owning, upper caste, poor, as well as middle-income group households. The motives for migration in both the cases, however, differ—the poor households adopt a coping strategy to mitigate risks of income uncertainties whereas the relatively better-off households adopt a risk averting strategy, which ensures that they are not exposed to the risks of low income. Our hypothesis that educational development of population is a main driving force for migration among the rural households in Uttaranchal emerges to

be highly significant. Since uneducated and unskilled labour force have lesser chances of getting higher income through migration, and hence is the lesser probability to out-migrate. It also emerges clearly that higher level of per capita farm income results in a significant decline in the propensity to out-migrate. Much of the migration from Uttaranchal, however is a consequence of the lack of employment opportunities that entail reasonable level of earnings, which is also attributed to lack of productive assets like land and overall poor economic conditions prevailing among the rural households.

The important features of out-migration from Uttaranchal are: (a) its largely long duration, (b) predominance of male migrants, who are generally young, (c) presence of a high proportion of educated migrants with low levels of technical skills, and (d) overwhelmingly large number of out-migrants employed in salaried jobs.

Nearly 70 per cent of migrant workers are employed in the informal sector as salaried workers. This has seriously limited their capacity to remit larger sum of money to their households back in their villages despite their high propensity to remit. At the same time, the migrant workers employed in better-paid government and private sector jobs tend to out-migrate permanently along with their wives and children, and this again severely restricts their propensity to remit. The permanently migrated workers account for nearly 16 per cent of all migrant workers. It is seen that nearly one-third of such migrant workers send remittances, which are unlikely to make a major positive impact on the region of their origin.

Though remittances raise the income levels of migrant households by more than one-fourth, a dominant share of the remittance income is simply used for meeting the daily consumption requirements of the households, which are not produced locally. Thus, the contribution of remittances towards improving agriculture and increasing investment in rural areas seems to be very low in mountain districts of Uttaranchal. Worse still, dependence on remittances has resulted in the neglect of agriculture, thus causing low per acre yields. In effect

the long history of migration from Uttaranchal could hardly provide the required surpluses to invest in developing its economic base.

It is observed that diversification of agriculture from traditional cereal-based production to horticulture and vegetable production has the potential of slowing the pace of out-migration as it helps to generate more employment opportunities and income for households. Unfortunately, this kind of diversification is limited to a few pockets, and thus a larger part of the mountain agriculture still remains backward. The Draft Tenth Plan of Uttaranchal clearly recognises the need to diversify mountain agriculture and also envisages promoting tourism for creating productive employment opportunities in the state.

The present phase of economic reforms has in fact slowed down the employment opportunities, thus adversely affecting out-migrant workers as most of them are unskilled and have low levels of education. The migrants with better education and skills are not only employed in better-paid jobs but are also able to remit a comparatively larger amount of remittances, despite the greater propensity among them to shift out permanently. The real challenge therefore is to enhance the education and skills of the population, so as to enable them to reap the benefits of upcoming job opportunities on the one hand, and also help those who out-migrate. This would require a serious re-look of the strengths and weaknesses of the existing infrastructure for the human resource development and accordingly to undertake corrective measures with greater orientation towards mountain specific education and training.

One of the important consequences of migration is return migration, which constitutes more than 4 per cent of the sample population. Return migrants bring with them both skills and savings, which they invest in local economy, mostly in construction of houses, cowsheds and purchase of livestock. Though retirement from the service has been one of the important reasons for return migration, the economic downtrend of 1990s resulting in the loss of jobs has been responsible for the return of about one-fifths return migrants. Income from pension is not sufficient to run a household and that is why many return migrants are engaged in multiple activities. It is observed that more than 80 per cent return migrants are

in the working age-group, who seek employment in the already tightened local labour market.

Notably, migration from rural Uttaranchal has brought certain remarkable demographic changes, viz., very high sex ratio, particularly among workforce; existence of a large percentage of child and old age population, etc. As a result of out-migration of male members, females have to devote more time in agricultural works, collecting fuel and fodder besides daily chores. Thus, they have little time to look after their siblings. Their vulnerability is further increased by environmental degradation, as a result of which they are required to devote considerable time in fuel and fodder collection.

CHAPTER VII

DIVERSIFICATION IN LIVELIHOODS

I. INTRODUCTION

In the earlier chapters, we have seen how rural households undertake multiple activities to support their livelihoods. The motives behind such diversification may vary sharply—at one extreme, households diversify their activities for maximising income, whereas at the other extreme, they do so just to maintain their subsistence living as a coping mechanism. It is seen that in the mountain region the need to do so largely arises due to their poor asset base like land and vulnerability to risks associated with rainfed mountain agriculture, which is mainly practiced on traditional line.

Diversification in livelihoods essentially has two main aspects: one is the number of different income-earning activities, which a household (or an individual) undertakes (Jodha et al., 1977); the other is the relative proportion of income gained from each activity (Ellis, 2000). Most of the studies on rural diversification deal with the changes in the structure of employment and income; and the shift of employment towards non-farm occupations is viewed differently (viz., growth induced vs. distress led) by different scholars as seen in Chapter I. At the household level the process of diversification, however, is complex. A household may be involved in a number of occupations yet in terms of their contribution to household income, just one or two may be the major contributors. Thus, to what extent it will be appropriate to term such hosehold a case of diversified livelihoods. The focus of this Chapter, therefore, is to examine the livelihood diversification among various socio-economic groups of households both in the context of number of occupations and their relative contribution to household income. First, we shall deal with the diversity in livelihood options and then their relative contribution to household income. The determinants of livelihood diversification will be discussed in the last section.

II. DIVERSITY IN LIVELIHOOD OPTIONS

In ICRISAT villages, Jodha et al. (1977) argued that small farm households were more likely to have more than one source of income than larger ones, as they were more vulnerable to the exigencies of drought and unreliable yields. However, over the years diversification has now become a common strategy among the rural households irrespective of the size of their operational land holdings to reduce their vulnerability to risks within the agricultural sector. More recently, this has been observed by Dev et al. (2002) for the same set of villages.

Table 7.1
Range of Livelihood Options for Different Household Groups (Per cent)

Household group	Number of occupations (Livelihood sources)						Number of households
	1	2	3	4	More than 4	Total	
Land class (in acres)							
Landless	18.42	26.32	28.95	18.42	7.89	100.00	38
Upto 0.5	0.68	17.69	44.22	27.89	9.52	100.00	147
0.5 to 1.5	0.00	18.75	41.41	26.56	13.28	100.00	128
1.5 to 2.5	3.92	11.76	33.33	33.33	17.65	100.00	51
2.5 to 5.0	3.13	0.00	37.50	34.38	25.00	100.00	32
>5.0	0.00	33.33	0.00	66.67	0.00	100.00	3
Per capita income class (Rs.)							
Less than 2500	7.69	35.90	41.03	12.82	2.56	100.00	39
2500 - 5000	3.79	18.94	39.39	31.06	6.82	100.00	132
5000 - 7500	0.00	8.54	40.24	32.93	18.29	100.00	82
7500 - 12500	2.60	7.79	38.96	31.17	19.48	100.00	77
12500 - 22500	2.27	11.36	38.64	25.00	22.73	100.00	44
22500 and above	0.00	40.00	40.00	16.00	4.00	100.00	25
Total	2.76	16.79	39.60	28.07	12.78	100.00	399

Resorting to multiple occupations (livelihood sources) is a common feature of the rural households in the mountain region of Uttaranchal. As is seen in Table 7.1, almost all the sample households have at least two or more livelihood sources. The large majority of households (near about 70 per cent) are engaged in three to four occupations. For about 13 per cent households there are even more than four sources of livelihoods. A distinguishing feature that clearly emerges in Table 7.1 relates to the increasing percentage of households taking up four or more occupations with the increase in land size. The number of

livelihood sources is comparatively lower among landless, poor and very rich households—nearly 45 per cent among them have upto two livelihood sources. Nearly one-fifth of landless households have a single source of livelihood. On the other hand, the number of livelihood sources is highest among households belonging to middle income group with nearly half among them have four and more occupations.

A look at the average number of occupations (livelihood sources) per household (Table 7.2) provides some interesting insights. On an average a rural household in the mountain region of Uttaranchal undertakes three occupations to sustain its livelihoods. The average number of livelihood sources is highest at 3.8 among the households, who have no main source of income. The next average number of occupations is highest among households for whom pension is the main source of income. As against this, the average number of livelihood sources is lowest among households whose main source of income is cultivation. This also means that there is a significant number of households who have diversified their livelihood sources from agriculture to non-agricultural occupations.

It is seen in Chapter V that the agricultural sector is the main source of employment as it employs more than two-thirds of the non-migrant workforce. However, if we look at the major occupation for a household from the income point of view, the picture that emerges is totally different. For nearly 40 per cent sample households there is not a single main source of income, while casual wage labour (non-agriculture) is the main source of income for about 13 per cent sample households. Non-agricultural self-employment and animal husbandry are the major sources of income for another 11 per cent and about 7 per cent households respectively. Cultivation, on the other hand, is the main source of income for even less than one-tenth sample households even though it is being pursued by an overwhelming majority of rural households (Table 7.2). This also accounts for the underlying pressure to diversify livelihoods in most of the sample households. Before analysing the diversification in sources of livelihoods, it will be appropriate to analyse the income from different livelihood sources.

Table 7.2
Percentage Distribution of Households by their Main Source* of Income and Average Number of Sources of Income

Main source of household income	Households (%)	Average number of livelihood sources per household
Cultivation	7.27	2.28
Animal husbandry	7.02	3.18
Agricultural labour	3.51	3.36
Non-agricultural labour	12.53	2.86
Non-agricultural self-employment	10.78	2.81
Caste-based occupations	1.50	3.33
Regular salaried jobs	9.27	3.22
Remittances	6.27	3.00
Pension	2.01	3.55
No major source	39.85	3.75
All households	100	3.33
No. of households	399	-

Note: Any source of income contributing more than half the household income is treated as a main source of income.

III. INCOME FROM LIVELIHOOD OPTIONS

According to Singh and Asokan (1981), income is defined as net returns to family-owned resources, encompassing land, livestock, labour and capital. It also includes income through wages, salaries, and transfer income through rent, remittances and pensions. Both monetary and imputed values of all traded and non-traded goods such as crop by-products figures in the computation of household income.

Before analysing the data, a few remarks about the household income are in order. It was observed that income was invariably under-reported by some of the households, particularly those who were better off and those who were very poor. Second, poor reporting was due to memory lapses or only because a rough guess was given. Despite these limitations, some interesting features emerge from the income data, which are analysed in the following section.

1. Composition of Household Income

Farm sector contributes about one-third of total household income, which comprises 14.6 per cent through cultivation, 14.4 per cent through livestock and

3.8 per cent through agricultural wage labour. Non-farm sector is thus, the major contributor to the household income, its share being as much as 58 per cent. The share of self-employed in trade and business in the household income is highest at about 32 per cent, followed by salary income (16.6 per cent). About 8.4 per cent of household income is contributed through non-agricultural wage labour (Table 7.3). Here it is necessary to mention that agricultural and allied activities alone contribute nearly half the income in 46 per cent of the sample households. In the remaining 54 per cent households, non-agricultural employment contributes more than half the income. The data for net district domestic product (NDDP) in Uttaranchal also show the lower share of agriculture and animal husbandry in NDDP at about 27 per cent in 1997-98.

This broad structure of household income, however, does not hold true when we analyse the composition of household income across various household groups. Agriculture and allied activities contribute more than half the income of the households belonging to the lowest three income strata. Animal husbandry is an important source of livelihood for such households as it alone contributes about one-fourth of the household income. In these households, casual wage labour (both agricultural and non-agricultural) is another important source of income as it contributes between 21-35 per cent of the income. Thus, agriculture, animal husbandry and casual wage labour together contribute more than 70 per cent of household income in those households belonging to the lowest three income stratas (Table 7.3). This itself explains their low levels of income.

The share of non-farm income in total household income tends to increase with the rise in the income strata of households. This emerges clearly in Table 7.3. In the middle-income group (Rs.7500-12,500) households, about one-fourth of the household income is contributed by salaried employees and another 14 per cent by the non-agricultural self-employed in petty trade. In the higher income group households, the self-employed in petty trade and business are a dominant contributors to household income. As expected, the contribution of remittances to

household income is substantive (more than one-tenth) in low-income group households.

Table 7.3

Composition of Household Income by Households' Per Capita Income Class

Sector	Per capita annual income class (Rs.)						
	Less than 2500	2500 – 5000	5000 – 7500	7500 – 12500	12500 – 22500	22500 and above	Total
Agricultural and allied activities							
Cultivation	23.58	18.48	20.70	17.92	16.66	3.98	14.63
Animal husbandry	26.13	23.47	24.27	16.87	11.16	2.31	14.45
Agricultural labour	4.71	8.70	9.12	2.77	1.26	0.00	3.83
Sub-total	54.42	50.64	54.10	37.56	29.08	6.29	32.91
Non-agricultural sector							
Self employed	8.10	8.88	11.64	16.58	34.08	74.01	33.16
Salaried jobs	2.78	4.42	7.81	25.33	26.43	18.04	16.55
Non-agri. labour	18.54	26.72	11.84	5.07	3.92	0.08	8.42
Sub-total	29.43	40.03	31.28	46.97	64.43	92.14	58.13
Transfer income							
Remittance	16.15	7.24	10.02	9.23	4.55	1.38	6.27
Pension	0.00	2.09	4.60	6.25	1.94	0.20	2.69
Sub-total	16.15	9.34	14.62	15.47	6.49	1.58	8.96
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00
%sample households	13.03	32.33	25.06	15.54	8.52	5.51	100.00

Given the high density of population on the limited cultivated land coupled with abysmally low productivity levels in agriculture owing to its rainfed nature, most of the households are faced with food scarcity in the mountains region (IDFC, 2002). This forces them to resort to multiple occupations—as a coping strategy. However, in some households diversification in livelihood sources comes though improvement in education and/or asset holding capabilities of their members—a risk averting and capital accumulation strategy. Essentially, the end objective of diversification in livelihood sources is to attain a comparative increase in their income levels. For households who resort to such diversification non-farm income becomes a major contributor to the household income as can be seen in Table 7.4. On the other hand, a household with a single source of livelihood, 'agriculture and allied activities' is the predominant source of income,

accounting for more than half the household income. Further, more than one-fifth of income in these households is contributed by casual wage labour, whereas remittances contribute merely 2 per cent. The next section will show that resorting to multiple activities does not necessarily bring about a significant increase in income levels.

Table 7.4
Composition of Household Income by Number of Occupations (Per cent)

Sector	Number of occupations				
	One	Two	Three	More than three	Total
Agricultural and allied activities					
Cultivation	24.03	12.79	14.58	9.61	14.63
Animal husbandry	18.78	13.02	14.31	16.95	14.45
Agricultural labour	7.45	3.58	2.80	2.57	3.83
Sub-total	50.26	29.39	31.69	29.14	32.91
Non-agricultural sector					
Self -employed	22.64	35.40	35.32	28.85	33.16
Salaried jobs	9.49	18.70	15.45	19.34	16.55
Non-agri labour	13.05	7.88	6.23	12.14	8.42
Sub-total	45.17	61.97	56.99	60.33	58.13
Transfers					
Remittance	2.12	5.71	9.14	7.07	6.27
Pension	2.45	2.93	2.17	3.45	2.69
Total	100.00	100.00	100.00	100.00	100.00
% households	20.55	51.43	22.31	6.02	100.00

IV. EXTENT OF LIVELIHOOD DIVERSIFICATION

As mentioned in the beginning of this Chapter, another way to measure diversification in the sources of livelihood is to look into the relative contribution of each livelihood option to household income. For this, we have used the Herfindahl Index and Entropy Index. Herfindahl Index (H) is defined as the sum of squares of all 'n' proportions. It is the measure of concentration. For increasing diversification, 'H' decreases. It is bounded by '0' (indicating complete diversification) and '1' (indicating complete specialisation). To put it algebraically:

$$H = \sum pi^2, \; pi = Ai/\sum Ai$$

Where pi = proportion of i^{th} source of income, A = income from i^{th} source.

Entropy Index, popularised by Theil (1967) is a measure of diversification. Algebraically

$$E = \sum pi \log (1/pi).$$

It is decomposable and has all the desirable properties of good measure (Kackbark and Anderson, 1975). There is a positive relationship between Entropy Index (E) and the extent of diversification. It takes the value zero when there is complete specialisation and log N (maximum possible) when there is perfect diversification. Thus, it is bounded by zero and log N.

Table 7.5 shows the extent of diversification of livelihood sources and per capita income across various groups of sample households. The diversification is presented under three different scenarios based on the location of sample households/villages, i.e. peri-urban (scenario I), semi-interior (scenario II) and interior (scenario III) (Annexure Table 7.1). As mentioned in Chapter IV, peri-urban villages are those which are located nearer to rural markets, have better infrastructure facilities like road, electricity and a relatively higher percentage of area under commercial production. Semi-interior and interior villages are characterised by a predominance of traditional cereal-based agriculture, limited access to infrastructure and a high incidence of out-migration.

Overall, livelihood sources among the rural households in Uttaranchal are highly diversified—the Entropy Index value being 0.39, whereas the average number of sources of livelihoods per household stands at more than three. The highest possible value of Entropy Index is 0.52, i.e., log of N number of occupations (Table 7.5).

Table 7.5
Diversification in Livelihoods

Location of household	Entropy Index	Herfindahl Index	Per household mean value of productive assets other than land (Rs. '000)	Mean Occupations (No.)	Per capita mean income (Rs.)
Peri-urban	0.29	0.61	37.84	2.81	12853
Semi-interior	0.44	0.44	14.17	3.68	8504
Interior	0.42	0.45	13.98	3.41	5909
All	0.39	0.49	21.16	3.33	8890

The extent of livelihood diversification is observed to be comparatively low in peri-urban villages as compared to those in interior villages (Table 7.5). The average number of occupations is less than three in peri-urban villages, whereas

it is more than three in interior villages. On the other hand, per capita income is more than double in peri-urban villages. It can be inferred that commercial farming and non-farm self-employment in peri-urban villages have significantly improved the per capita income levels across all land holdings so that the need to resort to multiple occupations is reduced. Thus, most of the diversification in livelihoods in peri-urban villages can be termed as distress diversification. This observation is further examined later in Table 7.7.

Income sources (livelihoods) are least diversified among landless, very poor and very rich households. This is true for all the three scenarios (Annexure Table 7.1 and 7.2). The explanation for this restricted diversification in each case is as follows: rich households do not resort to multiple occupations, as they have one or two stable sources of income with higher marginal productivity. On the other hand, though poor/landless households may resort to multiple occupations, they derive their maximum income from just one or two occupations. At the same time, many among the poor households are unable to undertake multiple occupations due to their poor resource endowments, particularly land. This finding negates a very common observation by studies on rural diversification (Sharma et al., 2001; Ellis, 2000) namely that poor and landless households have comparatively more diversified sources of livelihood as compared to others and this is reflected in the incidence of multiple occupations. The marginal and small land holding households have more diversified sources of livelihoods as the value of Entropy Index ranges between 40 to 49. It can be seen in Annexure Table 7.5 that the value of Entropy Index tends to increase as the land class of a household improves. This is true under all three types of scenarios. This also means that households tend to diversify their livelihood sources towards attaining more remunerative sources of livelihoods so to avoid insecurity of income associated with the prevailing traditional low yielding practices of farming, irrespective of the land size that they own.

A look at Annexure Table 7.2 again shows the higher extent of diversification in livelihoods particularly among the lower as well as middle income group households (lower income group range: Rs. 2500-7500; middle

income group range: Rs. 7500-22500). There are about 21 per cent sample households whose sources of livelihoods are highly diversified and they belong to lowest three income groups. Though such diversification definitely adds to their overall income yet its contribution towards meeting their basic minimum needs is very low as most of the occupations are not remunerative. In the case of middle income group households, who account for 30 per cent of the sample households, not only are livelihood sources more diversified but they are more remunerative, due to the higher educational level of their members as also their relatively large possession of assets including land. In the case of rich households (income group Rs. 22,500 and above), the value of Entropy Index is lowest at 0.20 and their mean occupation being 2.8 (Annexure Table 7.2). Such households have already entered into the stabilisation phase of livelihood diversification as postulated by Grown and Sebstad (1989), where they can invest in riskier enterprises.

In brief, a close examination of data given in Table 7.5 and Annexure Tables 7.1 and 7.2 bring forth the following four distinct types of scenarios emerging in the context of diversification in livelihoods:

(a) higher incidence of assetlessness, lesser number of occupations, low diversification in livelihoods and thus, lower per capita income;

(b) low value of assets, larger number of occupations, highly diversified livelihoods leading to moderate per capita income;

(c) moderate value of assets, more number of occupations, moderately diversified livelihoods and high level of per capita income; and

(d) high value of assets, least number of occupations, least diversified livelihoods yet highest per capita income.

To sum up, livelihoods among the rural households in mountain region of Uttaranchal are highly diversified. However, this kind of diversification has been mainly in low yielding activities thus serving merely as a coping mechanism for nearly 60 per cent households. There are another one-fourth households which have improved their income level significantly through diversifying into

comparatively high income yielding activities, which has been possible due to their relatively better resource endowments. This clearly implies that the livelihoods of high-income group households are least diversified.

1. Per Capita Income

The outcome of a strategy for diversifying livelihood sources is reflected in the per capita income levels of a household. It has been observed that despite the fact that an overwhelming majority of rural households in mountain region of Uttaranchal are engaged in multiple activities, the per capita annual income of a majority of them is low—it is the lowest at Rs. 1808 for the bottom 13 per cent households, which, therefore, may be called 'very poor'. Another one-third of the sample households are moderately poor as their per capita annual income is Rs. 3842 or less than Rs. 320 per month (Annexure Table 7.2). Thus, based on the income criterion, more than 45 per cent sample households in the mountain region of Uttaranchal are poor.

Income Inequality

There exists an acute income disparity among rural households in the state as is seen in Table 7.6. The per capita income in the lowest three quintile groups of households (representing 60 per cent households) is much less than the average household income. This can also be seen in relative income difference index in Table 7.6. It is abundantly clear that income inequality among the households tend to increase with the increase in per capita income. This is also reflected in the values of standard deviation. The per capita income in peri-urban areas is more than double than interior areas. The interior areas, in turn, have relatively least income inequality—as reflected in Gini coefficient—as compared to peri-urban areas (Table 7.7). The values of Gini coefficients for income distribution show that development perpetuates income inequalities at a larger degree. Overall, the Gini Coefficient for income distribution is high at 0.45 for the sample households.

Table 7.6
Income Inequality among Sample Households

Households' quintile*	Per capita income (Rs.)			Standard deviation	Relative income difference index
	Mean	Minimum	Maximum		
1 (lowest)	2436	480	3760	776.53	27.40
2	4257	2981	5855	687.97	47.89
3	6299	4180	10457	1587.68	70.85
4	9573	5242	19274	3093.64	107.68
5 (highest)	21805	7835	59730	13626.02	245.28
All	8890	480	59730	13564.61	100.00

Note: *Each representing 20 per cent sample households

Table 7.7
Gini Coefficients of Income Inequality

Location of household	Per capita annual income (Rs.)			Standard deviation	Relative income difference Index
	Mean	Minimum	Maximum		
Peri-urban	12853	480	59730	13564.61	0.50
Semi-interior	8504	710	45498	7053.71	0.39
Interior	5909	1245	35577	4545.37	0.35
All	8890	480	59730	13564.61	0.45

2. Determinants of Per Capita Income

It is equally important to understand the effect of livelihood diversification on levels of per capita income in the mountain areas of Uttaranchal. It is generally argued that households with poor resource endowment (such as land holding, productive assets and education) resort to multiple activities. Though their livelihood sources are more diversified they bring low incomes for the household, which typifies a distress phenomenon. Accordingly, we have fitted the following multiple linear regression model with the per capita income as dependent variable and livelihood diversification along with other variables as independent variables:

$$pci = b0 + b_1 X_1 + b_2 X_2 + b_3 X_3 + b_4 X_4 + b_5 X_5 + b_6 X_6 + b_7 X_7 + u$$

Where:
pci = Per capita income (Rs. '000)
X_1 = Entropy Index of livelihood diversification
X_2 = Per capita land (in acres)
X_3 = Value of productive assets per household (Rs. '000)
X_4 = Percentage of educated workers in all workers
X_5 = Number of principal status workers per household

X_6 = Percentage share of area under commercial crops in gross cropped area
X_7 = Percentage share of workers in rural non-farm employment
u = Unknown parameter

The model is fitted separately for three broad scenarios based on the distance of households from the district headquarter. These are peri-urban (Scenario I), semi-interior (Scenario II) and interior (Scenario III). The rationale for such categorisation of sample villages and households is already explained in Chapter IV. However, it is worthy to mention here that while households in Scenario I have better access to infrastructure facilities like road, electricity, market, education, etc., their counterparts in Scenario III lack such access. In Scenario I nearly half the gross cultivated area is under commercial crops as compared to less than one-tenth in Scenario III. Similarly, percentage of non-farm workers is highest in Scenario I.

The results of the model are given in Table 7.8

Table 7.8
Impact of Livelihood Diversification on Per Capita Income: Results of Regression Analysis
Dependent Variable: Per capita income (Rs. '000)

Variable	Scenario I		Scenario II		Scenario III		Overall	
	Coefficient	t' value	Coefficient	t' value	Coefficient	t' value	Coefficient	t' value
Constant	7.87	1.62	0.73	0.32	2.75	1.67	5.27	3.28
X_1	-25.76***	-3.45	-2.54	-0.57	1.84	0.57	-11.55***	-3.85
X_2	10.75*	1.75	7.58***	2.62	3.56	1.40	7.08***	3.29
X_3	0.04***	4.44	0.08*	1.83	-0.01	-0.94	0.04***	8.39
X_4	-0.02	-0.64	0.07***	4.12	0.04***	2.72	0.02*	1.71
X_5	2.12**	2.37	0.36	0.94	0.23	0.79	0.99***	3.50
X_6	0.08**	2.31	0.10***	4.15	0.01	0.16	0.08***	6.14
X_7	0.05	1.29	0.08***	3.95	0.01	1.04	0.04***	3.26
R Square	0.46		0.34		0.10		0.39	
N	119		140		140		399	

Note: 1. *** Significant at 1% level of significance; **Significant at 5% level; *Significant at 10% level.
2. Figures in parentheses are 't' values.

First, we will discuss the results of the model for the overall scenario as can be seen in the last column of Table 7.8. It emerges clearly that higher degree of diversification in livelihoods (as reflected in the higher value of Entropy Index) does not significantly result in the increase in per capita income of rural households in mountain region of Uttaranchal. Rather concentration in one or two livelihood options leads to increase in income. It is seen earlier in Table 7.1 that more than 40 per cent sample households are engaged in more than three occupations and 60 per cent among them belong to the lowest three income strata. Thus, the significant negative sing of Entropy Index typifies a case of a distress diversification of livelihoods wherein households struggle hard to retain their threshold income through resorting to multiple occupations (Table 7.8). The highly diversified livelihoods also show the critically of each source in households income as failure of any of these leads to rapid decline in the household income.

The positive sign of variable X_5 (i.e. number of principal workers in a household) with the per capita income suggests that the per capita income of a household tends to improve significantly with the addition of a principal status worker in its labour force. However, this kind of impact is significant only in a situation when households have access to infrastructure facilities like roads and markets (Scenario I), which in turn have facilitated their resource allocation in favour of increased market orientation.

The other factors that have a significant positive impact on per capita income include availability of assets—both physical and human—and their allocation. As is seen in Table 7.8, both per capita availability of cultivated land and percentage of educated among the workforce of a household significantly improve its per capita income. Bringing a larger area under commercial crops, such as fruits and vegetable production, significantly improves income levels of a household. Also, a shift in workforce (non-migrant workers) from farm to rural non-farm sector improves their income levels significantly.

After analysing the determinants of per capita income in an overall scenario, these are analysed under three different scenarios. In Scenario I, concentration in one or two livelihood options contributes a significant amount of

income to households. Those households resorting to multiple livelihoods do so due to distress phenomenon as it does not increase income levels to any significant extent. This is reflected in the significant inverse sign of Entropy Index. All the variables except 'percentage of educated workers' and 'percentage of non-farm workers' have significant impact on per capita income in this scenario. In fact, in Scenario I there is an insignificant difference between the income levels of educated and other workers with the very high farm income. Moreover, the percentage of educated workers is very high and widely spread across the households in this Scenario, which underscores its significance. A shift towards rural non-farm activities tends to improve per capita income but this relationship has not been found significant in Scenario I. This also implies insignificant differences in farm and non-farm income in this Scenario.

Contrary to Scenario I, Scenario III is a typical case of backward household economy where no variable except 'education' has any significant impact on improving per capita income (Table 7.8). As mentioned earlier, per capita income in this Scenario is lower by about three times than Scenario I. Lack of infrastructure like motor roads and markets and general apathy of development agencies of government could hardly provide any incentive to rural households in this Scenario to put their resources in commercial uses, which could otherwise have significantly added to their income. In fact, those households which have put some part of their land under commercial crops are unable to get any return due to lack of infrastructure. Thus, education of workforce is the single factor which has a significant impact on improving the income of households.

In fact, due to low-income levels in farm sector and lack of employment opportunities outside the farm sector, incidence of migration is highest in Scenario III as more than 55 per cent households have at least one migrant worker (Chapter VI, Table 6.3). Thus, education is the only asset which helps households to improve their income levels significantly. The positive yet insignificant relationship of Entropy Index with per capita income in Scenario III is

only an indicative of importance of multiple sources of livelihoods in supporting household income levels precariously in a low-income economy.

Scenario II of semi-interior villages supports a case where infrastructure facilities such as road network have provided scope for commercialisation of agriculture and rural non-farm employment, though on a limited scale, thereby resulting in a significant increase in per capita income. It is true for land and productive assets. The household's ability to allocate higher proportion of its labour in non-farm activities, particularly in rural non-farm sector has also resulted in a significant increase in per capita income in Scenario II. Improvement in the educational level of workers also significantly adds to the per capita income of a household. Here again in this Scenario diversification in livelihoods (Entropy Index) is though predominated by distress conditions, yet it has no significant impact on determining the household income. Unlike in Scenario I, additions to the number of principal workers in a household both in Scenario II and III do not contribute significantly to per capita income.

Thus, the important policy implications which clearly emerge from our results include providing infrastructure facilities (like motor roads, technical know how, credit and market) in rural areas of Uttaranchal, improving the educational levels of workers, particularly technical skills and promoting diversification of cereal dominated agriculture in favour of commercial crops. This will not only generate employment opportunities in a large number but also improve the overall per capita income of rural household economy in Uttaranchal.

V. CONCLUSION

Dependence on multiple livelihoods is a common feature among the rural households in Uttaranchal. Nearly 70 per cent households are engaged in three to four activities/occupations for maintaining their livelihoods. Apart from high workforce participation, nearly half the main workers are engaged in multiple occupations resulting in low levels of per capita income for the majority of the sample households. It has been observed that more than 40 per cent sample households live below the poverty line. These are predominantly dependent on

cultivation and casual wage labour. The income inequality is also quite evident as the lowest 40 per cent population has less than 15 per cent share in income.

Livelihoods are highly diversified in the mountain region of Uttaranchal. This is seen in the index of livelihood diversification, which shows the criticality of at least two livelihood options in contributing a major share in household income. In other words, a single livelihood source is not adequate for providing sustainable livelihoods to an overwhelming majority of the rural workforce in the mountain areas. There are nearly 60 per cent rural households whose livelihoods, though highly diversified, yet fetch very low incomes for the households. They merely do so as a coping strategy to meet their threshold income levels. Also, there are another one-fourth households with highly diversified livelihoods, which bring for them high income. Such diversification is facilitated by better resource endowments of these households. It has been also observed that livelihoods are comparatively less diverse both in very poor and very rich households. The poor are constrained to diversify their livelihoods owing to their poor asset base. Moreover, though labour is their only major asset, it is unskilled with very low educational attainments. At the same time, livelihood diversification is also associated with the increase in the vulnerability of poor households when one of the sources of livelihood fails to generate income.

In brief, our empirical analysis clearly shows that highly diversified livelihoods do not result in any marked impact on improving income levels for rural households, and, thus, much of the diversification in rural livelihoods is a coping mechanism. The factors that significantly contribute to income generation are availability of land, productive assets, number of principal workers and educational attainment. Diversification of traditional cereal-based agriculture into commercial crops such as fruits and vegetable production has significant potential in improving income levels provided it is supported by infrastructure. Thus, a viable and effective development strategy for the mountain areas of Uttaranchal should focus on bringing more land area under cultivation, providing infrastructure facilities like technology, transport, markets and input supply towards promoting large-scale commercial farming. This would also entail

providing reasonable food security at subsidised rates to marginal farmers, so that they are encouraged to switch over to commercial farming. Also equally important would be to promote the growth of rural off-farm and non-farm enterprises, and at the same time these are to be supported by infrastructure and various tax incentives. Improving education and skill levels of labour force, particularly of women who dominate the mountain agriculture, would be of utmost importance for enhancing their existing low levels of productivity and income levels. Particularly training in adopting improved farm practices post-harvest techniques, packaging and marketing will be very useful to promote the development of enterprises in the rural areas of Uttaranchal.

Annexure Table 7.1

Diversification in Livelihoods by Land Class Size

Household group	Entropy index	Herfindahl index	Per household value of productive assets other than land (Rs. 000)	Per capita mean income (Rs.)	Mean occupations (No.)
Peri-urban					
Landless	0.22	0.69	2.39	7083	2.41
upto 0.5	0.31	0.59	16.19	10777	2.98
0.5 to 1.5	0.31	0.58	31.78	15683	2.83
1.5 to 2.5	0.27	0.65	266.98	28907	2.80
2.5 to 5.0	0.52	0.36	21.67	20964	3.67
Total	0.29	0.61	37.84	12853	2.81
Semi interior					
Landless	0.38	0.51	2.86	8730	3.75
upto 0.5	0.43	0.44	9.17	6446	3.53
0.5 to 1.5	0.42	0.45	11.46	10115	3.52
1.5 to 2.5	0.44	0.45	18.34	9100	3.87
2.5 to 5.0	0.53	0.34	28.02	8567	4.06
>5.0	0.49	0.37	28.85	7102	4.00
Total	0.44	0.44	14.17	8504	3.68
Interior					
landless	0.39	0.50	5.97	4701	3.60
upto 0.5	0.41	0.47	10.22	4706	3.39
0.5 to 1.5	0.44	0.42	19.11	7056	3.47
1.5 to 2.5	0.41	0.44	10.74	5424	3.20
2.5 to 5.0	0.44	0.43	13.56	7045	3.46
>5.0	0.23	0.65	20.50	6315	2.00
Total	0.42	0.45	13.98	5909	3.41
All					
landless	0.26	0.65	2.91	6943	2.71
upto 0.5	0.38	0.50	11.86	7197	3.30
0.5 to 1.5	0.41	0.46	19.35	10062	3.34
1.5 to 2.5	0.40	0.49	65.61	12263	3.53
2.5 to 5.0	0.49	0.38	21.55	9111	3.78
>5.0	0.41	0.46	26.07	6840	3.33
Total	0.39	0.49	21.16	8890	3.33

Annexure Table 7.2

Diversification in Livelihoods by Per Capita Income Class

	Entropy index	Herfindahl index	Per household value of productive assets other capita mean income (Rs.)	Per capita mean income (Rs.)	Mean occupations
Peri-urban					
Less than 2500	0.23	0.66	2.73	2013	2.13
2500 - 5000	0.27	0.62	4.20	3876	2.40
5000 - 7500	0.40	0.47	9.69	6475	3.44
7500 – 12500	0.35	0.55	10.49	10206	3.19
12500 - 22500	0.31	0.60	40.38	16838	3.00
22500 and above	0.16	0.80	184.22	41769	2.59
Total	0.29	0.61	37.84	12853	2.81
Semi interior					
Less than 2500	0.34	0.53	5.41	1605	2.92
2500 - 5000	0.44	0.43	13.28	3779	3.50
5000 - 7500	0.47	0.41	14.93	6277	3.78
7500 - 12500	0.46	0.41	13.11	9876	3.83
12500 - 22500	0.47	0.43	23.74	15898	4.06
22500 and above	0.31	0.64	11.33	33482	3.67
Total	0.44	0.44	14.17	8504	3.68
Interior					
Less than 2500	0.34	0.52	28.14	1850	2.74
2500 - 5000	0.43	0.44	9.59	3857	3.46
5000 - 7500	0.44	0.43	12.75	6305	3.57
7500 - 12500	0.47	0.39	16.10	9751	3.62
12500 - 22500	0.45	0.43	16.66	15334	3.86
22500 and above	0.20	0.74	3.36	30244	2.50
Total	0.42	0.45	13.98	5909	3.41
All					
Less than 2500	0.32	0.56	15.93	1808	2.67
2500 - 5000	0.39	0.49	9.11	3842	3.19
5000 - 7500	0.44	0.43	13.04	6330	3.63
7500 - 12500	0.43	0.44	13.21	9932	3.60
12500 - 22500	0.40	0.51	30.17	16235	3.55
22500 and above	0.20	0.75	128.26	38858	2.84
Total	0.39	0.49	21.16	8890	3.33

CHAPTER VIII

FARM DIVERSIFICATION AND ITS IMPACT ON EMPOYMENT AND INCOME

I. INTRODUCTION

It is being increasingly realised that marginal lands in the mountain areas of Uttaranchal, like any other mountain region, will have to play an important role in providing better livelihoods in the future. The experience of Himachal Pradesh shows that given similar geographical and initial economic conditions, diversification of traditional cereal-based farming into the production of cash crops, such as fruits and vegetables, can significantly improve both employment and income levels of marginal farmers (Chand, 1996). In the previsous Chapter, we have also observed that increase in the area under commercial crops significantly increases the per capita income of households. Keeping this fact in mind, we have analysed the extent of farm diversification and its impact on employment and income among the sample households in this Chapter.

The Agricultural Census data as well as various micro level studies indicate that small and marginal farms adopt diversified farming, despite the very limited space available and low sizes of holdings. However, the extent of diversification is relatively low on these farms as compared to large farms (Haque, 1996). The results of micro level studies conducted in different regions of the country indicate that small and marginal farms are not averse to diversification. A study by Singh et al. (1985) in Punjab shows that there is an inverse relationship between farm size and agricultural diversification. Studies on diversified farming with vegetable production in mountain areas (Chand, 1996; Badhani, 1998) observed that such farming has a huge potential for employment and income generation and that marginal farm size are no constraint for diversification. Nevertheless, it is also true that the diversified farming practised by marginal and small farmers does not generate adequate income for their sustenance in most cases (Haque, 1992).

II. EXTENT OF FARM DIVERSIFICATION

In order to know the impact of farm diversification on labour use and productivity, we have categorised our cultivating sample households into four distinctive categories based on the percentage of area under fruits and vegetable production in gross cultivated area (GCA). These include households that are: (a) non-diversified (negligible area under fruits and vegetables), (b) marginally diversified (upto 25 per cent area under these two crops), (c) moderately diversified (25-50 per cent area), and (d) highly diversified (above 50 per cent area). The distribution of the cultivating sample households across these groups is given in the following Table 8.1.

Table 8.1
Percentage Distribution of Cultivating Households according to Degree of Farm Diversification*

Degree of diversification	Percentage of households	Percentage distribution of gross cropped area
Non-diversified (Nil)	36.34	41.08
Marginally diversified (upto 25%)	30.33	34.61
Moderately diversified (25-50%)	11.03	11.86
Highly diversified (above 50%)	15.28	12.44
Non cultivating households	7.02	-
Total	100.00	100.00

Note: *There are total 362 cultivating sample households. Here farm diversification, in a limited sense, refers to degree of shift in farming from traditional cereal production to horticulture and vegetable production.

Overall, about 18 per cent of gross cropped area is under fruits and vegetable crops in the sample households, which is abysmally low. In the marginally diversified areas, on an average, less than one-tenth of area is under fruits and vegetable production, whereas in the highly diversified areas it is more than 80 per cent.

Proximity to urban centres, and access to motor road and irrigation are significant factors which determine the degree of diversification in mountain agriculture as these provide market to the farm produce (Chand, 1996). In our sample, households situated nearer the urban centres (peri-urban) have a highly diversified agriculture as about 44.6 per cent of GCA is under vegetable

production and another 18.3 per cent is under production of fruits. As against this pattern, in interior villages even less than 8 per cent of GCA is under fruits and vegetable production (Table 8.2).

Table 8.2
Percentage Distribution of Gross Cultivated Area under Different Crops

Household group	Area under crops						
	Superior foodgrains	Inferior foodgrains	Pulses	Vegetables	Fruits	Others	Total
Degree of diversification							
Non-diversified	53.64	35.73	7.44	0.57	0.00	2.62	100.00
Marginally diversified	50.30	30.75	4.46	7.33	1.08	6.08	100.00
Moderately diversified	30.67	22.86	7.92	30.89	5.64	2.02	100.00
Highly diversified	6.11	6.73	5.45	53.23	27.01	1.48	100.00
Distance from urban center							
Peri-urban	21.91	11.45	2.73	44.56	18.31	1.04	100.00
Semi-interior	43.04	32.68	5.40	9.75	3.22	5.92	100.00
Interior	52.95	29.33	7.94	6.02	1.75	2.02	100.00
Total	43.78	28.59	5.96	13.10	4.73	3.84	100.00

Note: Superior foodgrains include wheat, paddy and pulses. Inferior foodgrains include millets like *ragi, sanwa, kauni* and other small millets.

An important factor that affects crop diversification, thus, is proximity to urban/semi-urban centers apart from the size of land. This hypothesis is proved to be statistically significant as can be seen in the regression results presented in the following equation.

$$\text{Div.} = 9.95 + \underset{(13.61)^{**}}{41.74}\ \text{peri-urban} + \underset{(2.32)^{*}}{3.33}\ \text{landsize} - \underset{(-2.91)^{**}}{0.12}\ \text{irrigation}$$

$$R^2 = 0.32$$

** Significant at 1 per cent level of significance
* Significant at 5 per cent level of significance

Div.	=	Per cent of area under commercial crops (degree of farm diversification)
peri-urban	=	Dummy of the location of a household. If a household is located near to urban center=1, otherwise=0
landsize	=	Per household cultivated land (in acres)
irrigation	=	Percentage of gross irrigated land in gross cultivated land

It is surprising to note a negative yet significant relation between irrigation and degree of farm diversification. This is due to the fact that irrigated land accounts for even less than 20 per cent of gross cultivated area. This land is fertile and is mainly used for cereal production by the households.

III. IMPACT OF FARM DIVERSIFICATION ON LABOUR USE

As observed earlier in Chapter IV, marginal land holdings are predominant in mountain areas, as 81.7 per cent of sample households own less than 2.5 acre (or about one hectare) of cultivated land. Given the large extent of marginality, there exists a considerable difference in the use of labour across various sub-groups of marginal land holdings. Per acre annual labour use is highest at 242 persondays in the smallest farm size groups, i.e. upto 0.5 acre (the ultra marginal landholding). It tends to decrease as the land size increases. This also holds true for various types of household groups (Table 8.3). This inverse relation between land size and labour use is clearly highlighted in several studies on agricultural development. Sen (1966) and Bhardwaj (1974) found an inverse relationship between farm size and labour use in the case of total crops, whereas in the case of individual crops no systematic or significant relationship was observed. On the other hand, Dasgupta (1977) revealed that the so called inverse relationship could not be generalised.

The differences in the intensity of labour use in agriculture, however, are mainly due to variation in (a) demographic pressure on cultivated land, (b) quality of land in terms of irrigation, (c) soil condition, (d) extent to which land holdings are scattered, (e) degree of diversification and (f) use of technology. These factors also determine the use of hired labour in agriculture. Since most of the agriculture in our sample villages is rainfed, we have not considered labour intensity and productivity for irrigated and non-irrigated areas separately. Also, data on quality of land in terms of soil types, etc., are difficult to collect in mountain areas and, moreover, is beyond the scope of the present study. Accordingly, we have limited our analysis to the per acre labour use and productivity in agriculture across the extent of its diversification, which, in a

limited sense, is share of fruits and vegetables crops in gross cropped area (GCA)[1].

Table 8.3
Per Acre Labour Use in Agriculture (Persondays)

Degree of diversification	Labour	Upto 0.5	0.5 to 1.5	1.5 to 2.5	2.5 to 5.0	>5.0	Total
Non-diversified	Own	232	109	84	75	61	116
	Hired	7	4	2	6	0	4
	Total	239	113	86	81	61	120
Marginally diversified	Own	219	139	84	68	52	109
	Hired	15	21	15	5	8	13
	Total	234	160	98	73	59	122
Moderately diversified	Own	271	154	155			189
	Hired	23	22	49	0	0	30
	Total	294	177	205			219
Highly diversified	Own	207	200	134	51		159
	Hired	4	21	20	58	0	23
	Total	211	221	154	109		183
All cultivating households	Own	231	141	100	69	54	124
	Hired	11	15	14	10	6	13
	Total	242	156	114	79	60	137

It emerges clearly that diversification of agriculture results in per acre increased use of labour, both family and hired labour (Tables 8.3 and 8.4). A moderate degree of diversification leads to an increase in per acre labour use by 82 per cent over the non-diversified area. A highly diversified agriculture increases per acre labour use by over 52 per cent over non-diversified agriculture. The proportion of male family labour also increases with farm diversification. As can be seen in Table 8.4, the share of males in family labour increases from 31.4 per cent in non-diversified farms to 35 per cent in moderately diversified farms and further to 43 per cent in highly diversified farms.[2] The share

[1] In a broader sense, farm diversification implies (a) a shift from subsistence farming to commercial farming, (b) a shift from low value food/non-food crops to high value food/non-food crops and (c) switch over from local to high yielding plant varieties. It also entails taking up not only seasonal crop farming, but also animal husbandry, fishing, agro-forestry, horticulture, etc.

[2] Increasing farm diversification has significantly reduced the propensity to out-migrate among the sample population. This emerged clearly in Chapter VII that the percentage of out-migrants population is almost half (about 10 per cent) in households with highly diversified agriculture as compared those practicing non-diversified or marginally diversified agriculture.

of hired labour increases significantly from just 3.6 per cent in non-diversified farms to as high as 12.7 per cent in highly diversified farms.

Table 8.4
Sex-wise Per Acre Labour Use in Agriculture by Levels of Diversification

Degree of diversification	Family labour			Hired labour			Total
	Male	Female	Person	Male	Female	Person	
Non-diversified	36	79	116	3	1	4	120
Marginally diversified	36	73	109	7	7	13	122
Moderately diversified	65	123	189	15	15	30	219
Highly diversified	68	92	159	14	9	23	183
Total cultivating households	43	82	124	7	6	13	137

Here again it needs to be noted that as against the inverse relation between labour use and land size, the proportion of hired labour tends to increase significantly with the increase in farm size—from 4.7 per cent in ultra marginal farms to more than 12 per cent in small farms. This pattern becomes more prominent as the degree of diversification increases the proportion of hired labour is generally more than half the total workforce in the land class size, 2.5 to 5.0 acre in a highly diversified scenario (Table 8.4).

Apart from the increase in the intensity of hired labour, with the increase in land size, its use also becomes widespread among the households with the increasing degree of diversification (Table 8.5). Notably, nearly half the cultivating households in a highly diversified scenario use the hired labour as compared to less than 14 per cent in non-diversified scenario.

The social taboo against touching the plough among many upper caste communities is also quite common, particularly in Kumaon region of the state as a result of which the demand for hired male labour for agricultural tasks is comparatively higher.

The message is, thus, clear: diversification of agriculture increases the use of both family and hired labour and the increasing farm size leads to the increasing use of hired labour. Thus, any policy aimed at promoting farm diversification, as a strategy of employment generation must also lay emphasis on providing more land to the marginal farmers. More importantly, farm

diversification has considerably reduced the incidence of male-specific migration as is seen in Chapter VII. At the same time out-migration of male members have given rise to the use of hired labour in agriculture, mostly for ploughing, farm labeling and repair tasks irrespective of the degree of farm diversification.

Table 8.5
Percentage of Cultivating Households Using Hired Labour in Agriculture

Degree of diversification	Land class (acre)					
	Upto 0.5	0.5 - 1.5	1.5 - 2.5	2.5 - 5.0	Above 5.0	Total
Non-diversified	18	12	5	20		14
Marginally diversified	24	49	46	42	50	39
Moderately diversified	28	50	80	-	-	40
Highly diversified	15	50	58	100	-	46
Total	22	36	36	37	33	31

IV. IMPACT OF FARM DIVERSIFICATION ON INCOME

Farm yield depends on a number of factors like use of modern inputs, irrigation, quality of soil, cropping pattern, etc. Here, per acre yield is understood in terms of gross value of a particular crop. As seen earlier, about 44 per cent of GCA is under superior foodgrains production, which include wheat and paddy, and another 29 per cent is under inferior foodgrains production which include barley, *sanwa* and *ragi*. These crops have the lowest yield in our sample households at Rs. 4810 and Rs. 3635, for superior and inferior crops, respectively. On the other hand, per acre yield is highest at Rs. 32,403 in fruit cultivation followed by Rs. 17,128 in vegetable cultivation, which are higher by 6.7 and 3.6 times, respectively than the yield of superior foodgrains (Table 8.6). Due to this, per acre yield in highly diversified farms is higher by more than six times than that in the non-diversified farms.

One noteworthy feature also emerges from the above Table is: While per acre value of yield in the case of food grains and other crops tend to decrease with the increase in land size, it increases sufficiently in the case of pluses, fruits and vegetables upto the land size, 1.5-2.5 acres. It needs to be mentioned here that fruit production has a long gestation period and food deficient households

are unlikely to forgo their short run advantage (in food production) for the benefit of the higher income in a longer period. Perhaps due to this fact, the marginal households are skeptical of about fruit production-led-diversification (less than 5 per cent GCA being under fruit production among the sample households, see Table 8.2).

Table 8.6
Per Acre Gross Value of Production (Rs.)

Household group	Crop						
	Superior food grains	Inferior food grains	Pulses	Vegetables	Fruits	Other crops	Total
Land class (in acres)							
Landless*	4418	5205	6962	10649	2110	15823	5853
Upto 0.5	7284	4723	8945	12882	21845	15384	8302
0.5 to 1.5	5400	4769	12533	20254	37926	12709	9966
1.5 to 2.5	3531	3165	15647	20554	30995	6101	8491
2.5 to 5.0	3439	2623	5470	12156	26834	3368	4714
>5.0	2700	3726	8017	3069	25316	10326	3708
Degree of diversification							
Non-diversified	3572	2475	6293	9494		2999	3401
Marginally diversified	5557	3412	10075	15397	40889	5607	6204
Moderately diversified	8295	8996	18504	18725	32323	36920	14419
Highly diversified	6518	13362	24183	17556	31439	26702	20845
Total	4810	3635	10978	17128	32403	7300	7856

Note: *Some of the landless households undertake cultivation on others' farms without paying any rent.

Diversification also involves increasing costs to be incurred on inputs such as fertilisers, pesticides, hired labour, transportation, etc. Due to this, the per acre cost of cultivation is less than 2 per cent of gross value of production in non-diversified farms whereas it is highest at about 28 per cent in highly diversified farms. Crop-wise, per acre cost of cultivation is highest in vegetable production as it accounts for nearly 30 per cent of the gross value of output. Similarly, fruit production costs nearly one-fourth of its gross value. This is self-explained in the following Table 8.7.

Table 8.7
Per Acre Cost of Production (Rs.)

Degree of diversification	Superior foodgrains	Inferior foodgrains	Pulses	Vegetables	Fruits	Others	Total
Non-diversified	72	46	0	986	0	153	63
Marginally diversified	349	70	504	3619	11143	678	646
Moderately diversified	733	121	1109	4082	7655	5274	2140
Highly diversified	102	3589	2936	5867	8210	588	5756
Total	237	181	633	4966	8437	714	1270

We have calculated per personday net value of production in Table 8.8, which again points to a clear message, i.e., traditional cereal-based crop husbandry will no longer be able to provide sufficient income to sustain the livelihoods of the cultivating households in mountain agriculture. Diversifying the present cropping pattern towards the production of fruits, vegetable and medicinal plants will not only provide more days of employment but also have immense potential for income generation. As can be seen in Table 8.8, per personday net income in agriculture in highly diversified farms is higher by more than three times for all land classes as compared to that in non-diversified farms. Per person day net value of production tends to increase with the increase in land size (Table 8.8), which becomes more pronounced with increasing farm diversification.[3] This clearly underscores the critical importance of a diversified cropping pattern for ensuring reasonable livelihoods for households in the mountain areas of Uttaranchal.

If we consider the prevalent daily wage rate in agriculture at Rs. 65, it can conclusively be said that among households engaged in cultivation, 40 per cent have per personday earnings of just half the existing wage. In another one-third cultivating households, per personday income is less than one-fifth of the existing wage rate. This also indicates a high incidence of underemployment among the households practicising traditional cereal based agriculture. In about 16 per cent

[3] It is statistically proved in Chapter VII, (Table 7.7) that farm diversification significantly improves the per capita income of a household.

cultivating households, which witnessed a high degree of diversification in their crop production, per personday income is 1.5 times higher than the prevailing wage.

Table 8.8
Per Personday Net Value of Production in Agriculture (Rs.)

Degree of diversification	Land class (in acres)					
	Upto 0.5	0.5 to 1.5	1.5 to 2.5	2.5 to 5.0	>5.0	Total
Non-diversified	23	32	30	36	31	29
Marginally diversified	37	53	51	60	78	51
Moderately diversified	49	67	91	-	-	65
Highly diversified	46	87	118	210	-	95
Total	34	57	68	59	67	53

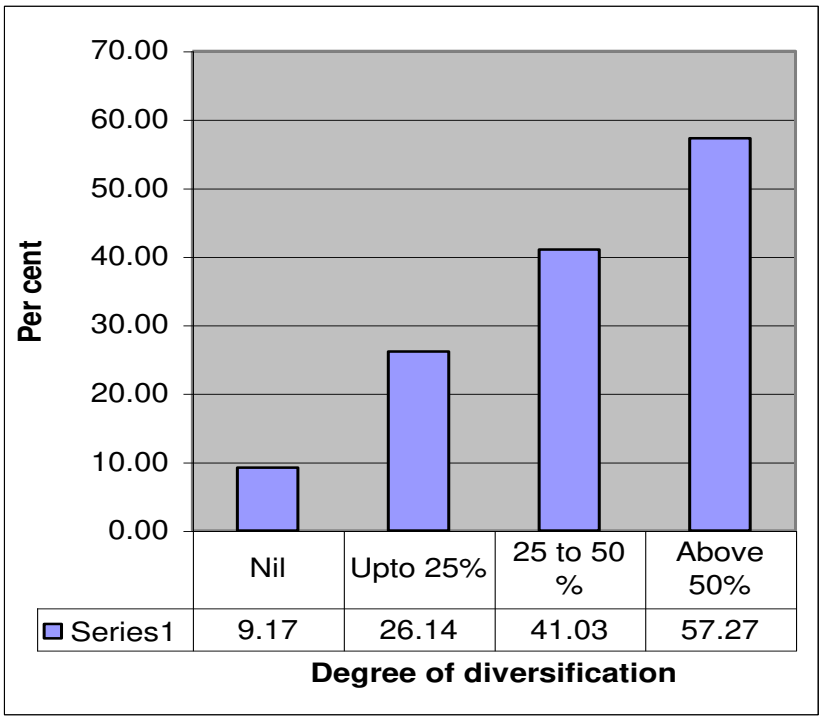
Market Orientation and Self-sufficiency

The observed proportion of output sold in the case of different crop groups is a rough measure to indicate whether crop production is oriented towards the market or towards home consumption. It goes without saying that the lesser the proportion of output sold, the greater is the significance of farm production from the view point of attaining household food self-sufficiency. At the same time a greater emphasis on self-consumption, undermines the potential for generating market surplus and commercialization of farm produce.

Another aspect of self-sufficiency relates to the extent to which different crop groups provide residues for meeting livestock fodder requirements. This aspect is also significant from the viewpoint of inter-enterprise linkages between crop and livestock enterprises. As such, the fodder content of crops is an important consideration in the crop choice of farmers in the rainfed regions like mountain areas. The proportion of crop residues used as feed/fodder can serve as an indicator of the significance of fodder in crops.

Figure 8.1 shows how crops like horticulture and vegetables are completely oriented towards the market (for obvious reasons) irrespective of the farm size. Nearly 60 per cent of gross farm output is sold to market in highly diversified farms, as against, less than one-tenth of agricultural produce in non-diversified scenarios.

Fig. 8.1
Percentage of Gross Agricultural Output Sold in Market



Our discussions with the respondents who adopted highly diversified farming, particularly horticulture, reveal the potential for dairying in their areas as horticulture provides sufficient fodder for animal husbandry. But at the same time they complained about the risk arising from the occurrence of climatic changes leading to the consecutive failure of horticultural crops for the last three years, which have undermined their income security.

As mentioned earlier, food security considerations are equally important for households in deciding not to diversify their crop production (Table 8.9). Significantly, the per-capita availability of foodgrains per annum is highest at 118 kgs. and 198 kgs., in non-diversified and marginally diversified cultivating households respectively. It dips sharply at 38 kgs once a household switches to a highly diversified scenario. As is obvious, the farm size has a significant positive relation with the per capita availability of foodgrains, which is why, per capita availability of foodgrains is lowest among SCs who own a very little land. The lowest per capita availability of foodgrains among STs is not necessarily due to

scarce land, but because a number of them have switched to vegetable production. The table also shows that the share of inferior foodgrains like *sanwa*, ragi and barley is fairly large at about 36.9 per cent and that of pulses is lowest at about 7.2 per cent in per capita foodgrains among the cultivating households.

Table 8.9
Per capita Availability of Foodgrains Per Annum (in Kgs.)

Household group	Foodgrain			
	Superior	Inferior	Pulses	All
Land class (in acres)				
Landless*	21.69	7.46	1.18	30.34
upto 0.5	54.23	18.48	3.49	76.20
0.5 to 1.5	79.90	47.31	10.77	137.99
1.5 to 2.5	70.70	77.81	17.81	166.32
2.5 to 5.0	116.68	110.79	12.32	239.80
>5.0	154.00	124.00	24.00	302.00
Caste				
Brahmin	88.83	55.12	13.47	157.42
Rajput	98.08	64.04	12.15	174.27
OBC	22.15	31.16	2.03	55.35
SC	38.68	22.63	2.82	64.13
ST	41.93	29.07	15.13	86.13
Degree of diversification				
Non-diversified	64.91	43.22	9.49	117.62
Marginally diversified	121.50	67.57	8.80	197.86
Moderately diversified	42.06	44.80	8.48	95.34
Highly diversified	10.21	18.18	9.74	38.14
All	71.82	47.29	9.18	128.30

Note: *Some of the landless households undertake cultivation on others' farms without paying any rent.

If the daily per capita food consumption is 400 gram irrespective of its variety, it can be surmised that an overwhelmingly large percentage (nearly 70 per cent) of cultivating households in the mountain region of Uttaranchal are food deficient. It needs to be mentioned here that all the households which are largely engaged in foodgrains production (nearly 40 per cent), are food deficit by nearly one-fourth of their requirement.

V. CONCLUSION

Thus, the message is loud and clear. Traditional cropping system, which has been based on food security considerations, has failed to provide reasonable livelihoods to mountain people in Uttaranchal. Chand's study on Himachal Pradesh (1996) clearly shows that one per cent shift in area from other crops to off-season vegetables lead to 1.60 per cent growth in the existing level of employment in irrigated farms and 2.85 per cent in unirrigated farms, the average being 1.60 per cent. The shift will bring around six per cent increase in net return from existing cropping pattern under irrigated conditions and around four per cent under unirrigated conditions. Our study reveals that in the case of commercial and higher profitability enterprises, farm size is not a constraint to production and marketing, rather infrastructure like access to motorable road, market and irrigation are important to determine the extent, success and profitability of diversification into high paying crops like off-season vegetables and fruits. Also, in our sample, a switch over to commercial crop production enhances the per acre gross value of production by more than six times in the case of fruit cultivation and by nearly four per cent in the case of vegetable production. Like-wise, per acre labour use also increases by nearly 52 per cent. In highly commercialized farming per personday average value of output also increases by more than three times, but, unfortunately, a very small share of gross cultivated area is under such farming (nearly 18 per cent).

More importantly, a switch over to commercial (diversified) farming has the potential to significantly reduce the incidence of male-specific out-migration. This also emerged prominently in Chapter VI. Similar observation has been made by Badhani (1998) in his study on farm diversification in Garampani area in Uttaranchal.

The *mantra* for secured livelihoods, thus, lies in diversifying existing traditional cereal-based crop production into commercial cultivation, which has great potential for providing enhanced employment and income. The immediate food security considerations of marginal and small farmers would have to be taken into account by supplying adequate foodgrains through public distribution

shops at cheaper rates, which in turn, will persuade them to switch over to gradually commercial farming. Mountain regions have the added advantage of producing off-season vegetables like tomato, peas, beans, cabbage and capsicum in summer (April to October) when these crops are not grown in the plain areas of the country. The price advantage makes it worthwhile to incur high production cost and transport off-season vegetables to distant consumer markets. The provision of improved variety of seeds, subsidised credit together with infrastructural facilities like motor road, irrigation and a market would go a long way towards transforming agriculture into a successful enterprise.

CHAPTER IX

SUMMARY AND CONCLUSIONS

This chapter attempts to recapitulate the major findings of this study on employment, migration and livelihoods in the hill economy of Uttaranchal. An attempt is also made to draw policy implications based on the findings.

I. INCOME AND POVERTY

Uttaranchal came into existence as the 27th state of Indian Union on November 9, 2000 by carving out 13 districts of Uttar Pradesh. The available estimates of net district domestic product (NDDP) for Uttaranchal show a higher per capita income for the state at Rs. 9971 as compared to the national average of Rs. 9288 during the year 1997-98. The higher per capita income for the state is also marked by a comparatively very low per capita income in all the mountain districts, except Nainital and Uttarkashi, ranging between Rs. 6512 in Chamoli to Rs. 8866 in Garhwal district. Growth in per capita income remained almost stagnant in the state during the period, 1980-81 to 1996-97. A noteworthy feature of the growth of per capita income is that though it increased by more than 2 per cent per annum during the 1990s in the state, yet it remained nearly half of the national growth rate. The current low level of development of agricultural and industrial sectors in the state is mainly responsible for such low levels of income in its mountain districts. Agriculture is largely practiced on traditional lines: it is centered on cereal production for self-consumption with hardly any market orientation. There is hardly any significant change in the cropping pattern in the larger areas of mountain districts. Moreover, agricultural development is constrained by the limited geographical area (about 14 per cent) available for cultivation, preponderance of marginal land holdings (less than one hectare), rainfed situations and complete absence of technological applications. As a result the productivity of two major crops, namely paddy and wheat, in the mountain districts is much less than even half that in the plain parts of the state. Animal husbandry is yet another major subsistence activity, which is mainly practiced to

meet milk and draught power requirement apart from providing manure for agriculture. Hill districts are virtually devoid of any major industry. More than half the small-scale industries are located in just three plain districts, viz., Dehradun, Udham Singh Nagar and Hardwar, accounting for about 58 per cent of employment in 1999-2000. The end outcome of such lopsided development is the widespread poverty among the rural households in the mountain districts of the state. Nearly 36 per cent rural households live below poverty line. Furthermore, the commonly applied indicators of poverty do not always reflect poverty or its absence in mountain areas.

II. POPULATION AND LABOUR FORCE

With a population of 8.48 million, Uttaranchal accounts for 0.82 per cent of the population of India. Distribution of population in the state is highly skewed as 46.7 per cent of its population resides in three plain districts of Hardwar, Dehradun and Udham Singh Nagar. It is one of the few Indian states which witnessed a faster deceleration in the growth of population particularly since 1981. The deceleration has been more pronounced in the mountainous districts. Almora and Garhwal witnessed a three-fold decline in the growth rate of population during the decade, 1991-2001 as compared to earlier decade, i.e. 1981-1991. The faster deceleration in the growth of population in these districts has been due partly to a decline in the birth rates and partly to high out-migration, especially of males, from these districts. This is clearly reflected in the very high sex ratios in the mountain districts (ranging between 1017 to 1147), which too tended to improve over the years.

Uttaranchal ranks 9th among the Indian states in terms of literacy with more than 72 per cent of its population being literate. The growth in literacy rate in the state has been sharper with the onset of the eighties, particularly in the case of females. The inter-district disparities in the level of literacy attainments declined in respect of both the sexes in the decade, 1991-2001. The state also witnessed a rapid growth in its secondary and higher education as reflected in the growth of its relative index of enrolment. This strong human resource base of

the state can be transformed into human capital by providing market oriented education and training with minimum efforts. Though technical education grew rapidly in the state, it is marked by underutilisation of its sanctioned intake capacity. Moreover, technical education in the state lacks orientation towards creation of skills that are in demand in mountain areas.

One of the distinguishing features of the state is its higher labour force participation for females (35.9 per cent) as compared to the national average (30.2 per cent) and lower for males (46.1 per cent as compared to 54 per cent). These differences are more pronounced in rural areas. LFPRs declined both in Uttaranchal and India, but there has been a significant decline in LFPR in the former (by about 9 percentage points) during the 1990s. This has been true for both the sexes. High participation of females in education, higher male out-migration as reflected in increasing sex ratio during the 1990s and withdrawal of females from agriculture-related works are the factors attributed to the decline in LFPRs in the state. Nearly 40 per cent of the population of the state is in the work force. This emerges both in NSS and Census data.

III. ASSET BASE

Our survey data show extremely limited asset base for rural households which ultimately shapes the pattern of their livelihoods. Owing to the absence of modern technological applications, the effective use of their asset base is further constrained by the inaccessibility and fragility of mountain areas. Land, for example, a major source of livelihood for an overwhelming majority of workforce in rural areas, is a scarce asset in the mountain region of Uttaranchal. More than 80 per cent households own land holdings of less than one hectare each and more than 36 per cent households own even less than 0.5 acre land. Another one-tenth households are landless. Livestock, which mainly covers milch, draught and other animals like goats and sheep, is mainly practiced to support crop production and meet the milk requirements of the households. Poor households tend to retain a proportionately larger number of milch animals to be able to augment their livelihoods. Accessibility to the market encourages rural

households to make large investments on milch animals, these being mainly demand driven. The livestock suffers from poor quality with low milk yield. Due to limited availability of land, most of the households are faced with the problem of fodder shortage, which in turn also discourages them from maintaining a large number of milch animals. An overwhelmingly large number of households do not own any non-farm implements as there are hardly any manufacturing and processing activities in the mountain villages. Here again, only well-off households and those located in peri-urban areas make the highest investments in non-farm assets. The poor physical asset base of rural households is combined with the high levels of literacy (about 80 per cent) whereby nearly one-fourth of the sample population is educated upto high school and above. Moreover, the educational attainment of the population is significantly influenced by their socio-economic characteristics. This is evident from the fact that the highest level of illiteracy coupled with lowest percentage of educated are found among SCs, casual wage labour and ultra-marginal land owing households.

IV. EMPLOYMENT AND UNEMPLOYMENT

The Census data show an absolute decline in the number of main workers both males and females in Uttaranchal from 2155 thousand in 1991 to 1969 thousand in 2001—i.e. by 186,000. Taking both the main and marginal workers, their growth halved from 2.3 per cent during the decade, 1981-1991, to 1.1 per cent during the decade, 1991-2001; the growth being even less than half per cent in most of the mountain districts. This only suggests the deteriorating employment opportunities in the state.

According to 2001 Population Census, agriculture employs 58 per cent of the workforce in Uttaranchal. It employs nearly 72 per cent of workers in rural areas of the state. Gender-wise, 88.5 per cent of female and 59 per cent of male workers are employed in agricultural sector. The NSS 55th Round data for the year 1999-2000 show that more than 82 per cent of rural workers are employed in agricultural sector in Uttaranchal and that no major shift has taken place in the overall structure of employment during the past 20 years. However, there has

been a shift in the structure of male employment, and more so among the rural males. The Census data also shows a major shift of rural male workers in favour of rural non-farm employment. Thus, rural non-farm employment is mainly the domain of males with limited access to female workers in the state. Self-employment is the predominant mode of employment as over three-fourths of the workforce is self-employed. In other words, opportunities for casual wage employment in the state are extremely limited.

The survey data show that about three-fourths of the non-migrant workforce in the sample households is engaged in agriculture and allied activities for sustaining their livelihoods while the remaining one-fourth workers are employed in rural non-agricultural sector. The survey data reconfirms the excessive polarization of the workforce between the two sexes, as females alone constitute nearly 74 of the workforce engaged in agriculture whereas males constitute more than 92 per cent of non-agricultural workforce. This kind of highly 'gendered' allocation of work is a result of the 'risk averting' strategy by a household, which prepares its male workforce for taking up more remunerative work outside agriculture and leaving the primary responsibility of cultivation to its female members. In effect, the high incidence of out-migration among male workforce (about 27 per cent) is the culmination of such a household strategy for sustaining their livelihoods. This tendency is becoming more pronounced over the years. With the result that today over 53 per cent of male youth workforce earn their livelihood through out-migration. In all, out-migration provided 18 per cent of employment for rural households in mountain region of Uttaranchal. Resultantly, the sample data show a significant shift of about 13 per cent points in the structure of employment in rural households in favour of non-farm activities over a decade, which is not reflected in both the NSS and Census data.

About 28 per cent workers are illiterate and another 24 per cent possess education upto the primary level. Nearly 28 per cent workers are educated (high school and above). A noteworthy feature of the educational level of the workforce is the very poor educational attainment of those working as self-employed in the agricultural sector as more than 40 per cent among them are illiterate. It is

observed that educational attainment is mainly instrumental in facilitating a shift from farm to non-farm employment, particularly in self-employed ventures.

1. Multiple Employment

Apart from higher work participation rate, resorting to multiple employment is yet another important feature of rural Uttaranchal as more than 58 per cent principal workers (excluding regular) are engaged in secondary gainful activity. The extent of multiple employment is very high among the principal male workers as compared to their female counterparts—71 per cent male and less than half female workers being involved in multiple employment. Among male workers, about one-fifth of the primary workers are engaged in more than two activities. The extent of multiplicity is highest among casual wage labourers and those self-employed in petty trade and business as more than 75 per cent and 70 per cent among them are also engaged in more than one occupation, respectively. This also shows that trade and business is being pursued as a survival activity. At the same time, poorest are constrained to take up multiple occupations. Clearly, the factors that largely determine the extent of multiplicity of activities among workers include their poor asset base, bigger household size and low level of per capita income.

2. Diversification in Rural Employment

About 26 per cent of the rural non-migrant workforce is employed in rural non-farm activities, which is mainly a male domain. The regression results confirm our hypothesis that diversification of rural workers from farm to non-farm sector is mainly a 'distress-led phenomenon' as the size of workforce in rural non-farm activities tends to decrease significantly with the increase in farm income. Similarly, once a household starts receiving remittances of a sizeable amount, it tends to gradually withdraw from the subsistence rural non-farm activities. At the same time, improvement in the educational levels of workers has significant impact on their diversification towards non-farm activities. Also, proximity to the urban centers has a significant positive impact on the diversification of workforce from farm to rural non-farm activities.

3. Unemployment and Underemployment

The incidence of open unemployment in Uttaranchal is marginally low at 2 per cent as compared to that for India at 2.4 per cent. However, open unemployment in the state is a male specific phenomenon. In rural areas it is almost double that at all-India level at 3.9 per cent. Unlike the national pattern the incidence of unemployment in the state is comparatively higher among rural males than urban males. This is so despite the sizeable proportion of out-migration of male workers. Thus, the major problem is the lack of regular employment opportunities and the high incidence of underemployment in terms of unutilized labour time and inadequate levels of income despite higher work participation, particularly in the case of rural female workers.

Our sample data show 3.1 per cent of male and 1.8 per cent of female labour force as unemployed according to their usual status. However, according to the usual principal status, about 15 per cent of male and 3.2 per cent of female labour force is unemployed, an overwhelmingly large majority (92 per cent) among them being youth (15-29 years). The incidence of unemployment is almost double (17.5 per cent) among those with high school/higher secondary education as compared to those with educational level upto middle standard (9.6 per cent). It is highest (24.5 per cent) among graduate labour force. More importantly, the incidence of unemployment is lowest (7.5 per cent) among those with technical education. Nearly 42 per cent of unemployed are registered in employment exchanges. It emerged significantly that the relatively better-off persons can afford to remain unemployed for a comparatively longer period. In all, a large majority (nearly 70 per cent) unemployed suffer from a 'severe' unemployment syndrome as they remain unemployed for more than nine months in a year.

The extent of underemployment is quite high among the rural households in the mountain region of Uttaranchal despite a large proportion of workers being engaged in multiple gainful activities. As many as 48 per cent of non-migrant workers remain underemployed during a year. The extent of under employment

is particularly striking in the case of male workers (56 per cent). The duration of underemployment is higher among male workers, who remain without work for over two-thirds of days in a year. In the case of female workers, it is observed that they work continuously during the whole year in one or other activity and in activities other than agriculture. On an average they work for 13 hours during peak agricultural season and about 10 hours during the lean season.

Public employment generation programmes could hardly help in ameliorating the problem of underemployment owing to their extremely limited coverage and intensity. On an average, about 22 days of employment could be provided to each beneficiary household under the wage employment programmes of the government during a year preceding the survey.

V. MIGRATION

The analysis brings to fore the fact that the increasing population pressure without commensurate increase in employment opportunities has compelled able-bodied youth males to out-migrate to eke out their livelihood and to support their families left behind. As a result, nearly 42 per cent sample households have at least one out-migrant worker.

The results of Logistic Regression show that probability of migration among household members is significantly higher among those households which have relatively better educated population and higher percentage of principal workers than other households. The probability to out-migrate is highest among upper caste households than the Scheduled Caste households. In fact, they have also a basic economic reason to migrate. These groups have the necessary resources to meet the cost of migration, while the poorest have neither the capacity nor necessary education and skills to take up a job on migration. In fact, a significant positive impact of education on out-migration lends credence to the above contention. Another important finding is that improvement in agricultural income of a household significantly reduces the probability of out-migration of its labour force. It is found to be significantly low among those households, which have a high degree of crop diversification in

favour of commercial crops. The results of multiple regression also reconfirm the nature of impact as is observed in the case of Logistic Regression.

Essentially, out-migration is largely of a semi-permanent, male selective and oriented towards urban destinations. More than half the migrant workers are youth (15-29 years), the mean age at migration having marginally increased over the years. An improvement in the educational levels of the population, the high pressure of population on cultivated land, general economic backwardness and sheer economic necessity are mainly responsible for a larger part of migration from among rural households in the mountain region of Uttaranchal (accounting for 60 per cent of migrants) as the region lack employment opportunities, mainly for its educated labour force.

In so far as the effects of migration on households' income are concerned, it significantly improves household income by more than 25 per cent. However, since more than 70 per cent migrant workers are employed in low paid informal sector salaried jobs, their capacity to remit larger sum is severely restricted. By and large, migration has definitely increased income levels of migrant workers. More than half among them witnessed a five-fold or more increase in their income. Production loss due to migration is not found to be significant because despite migration households have enough workers (mostly females and children) to get the maximum yield from the land they possess. This has not been true for those areas that have larger area under commercial crops. Moreover, per acre male labour input in mountain farming is much less than that in the case of females even in respect of non-migrant households. Thus, migration results in net benefits of a significant magnitude to the households sending out-migrants. This is so even when only regular cash remittances are taken into account not accounting for accumulated savings of return migrants.

Another distinguishing feature is the increasing tendency among workers to migrate out along with the family once income level and service conditions of migrant workers improve. These migrants who constitute nearly 38 per cent of all migrant workers generally leave their old parents behind in their villages. Many

locked houses in the mountain villages in Uttaranchal is yet another testimony of such type of out-migration.

VI. DIVERSITY IN LIVELIHOOD OPTIONS

It is found that a large majority of rural households (more than 80 per cent) undertake at least three activities/occupations to support their livelihoods in the mountain region of Uttaranchal. The number of multiple occupations, however, is least among the very poor as well as very rich households for altogether different reasons. Owing to the large number of multiple livelihood sources, there is not a single major source of income for at least 40 per cent of households that could alone contribute more than half the income for a household. This only shows the vulnerability of rural households to risks of failure of any source of their income.

The index of livelihood diversification shows that livelihoods of rural households are highly diversified in the mountain region of Uttaranchal. This also establishes the inability of a single livelihood source for providing adequate livelihoods to rural workforce in the mountain areas. There are nearly 60 per cent rural households whose livelihoods though are highly diversified yet able to fetch very low incomes for the households—less than average per capita annual income of Rs. 8890. They simply diversify their livelihood sources as a coping strategy to meet their threshold income levels. However, diversification in livelihoods has benefited at least one-fourth of the sample households by significantly improving their per capita income levels. This kind of diversification is greatly facilitated by their better resource endowments like educational attainments, land and non-farm productive assets. It has also been observed that livelihoods are comparatively less diverse both in poor and rich households. The poor are constrained to diversify their livelihoods owing to their poor asset base. Though labour is the only major asset for them, it is unskilled with very low educational attainments, which bring low returns. The rich do not need to diversity as the single activity, most often cultivation, fetches sufficient income.

The income inequality is also quite evident among the rural populations as the lowest 40 per cent population shares less than 15 per cent income. This is

also seen in high value of Gini coefficient of income distribution at 0.45. Income inequality perpetuates further with the increase in per capita income.

In brief, much of the diversification in rural livelihoods is a coping mechanism for a larger section of the rural population that could not result in any significant impact in improving income levels. Though diversification in livelihoods through migration could to a certain extent ameliorate income of households, the fact remains that its overall impact on regional economy is not pronounced as it hardly helped to promote investment in local resources except by way of providing limited support for education of children, and enabling the purchase of land and building/renovation of houses.

It merits mention here that the factors that significantly contribute to income levels are availability of land, productive assets, educational attainment of the labour force, and location of a household in terms of access to markets and road networks. It is found that diversification of traditional cereal-based agriculture into commercial crops such as fruits and vegetable production offers enormous potential for improving both employment and income levels provided it is supported by infrastructure like roads, markets, etc. This has also significantly reduced out-migration of youth male labour force.

Our analysis leads us to conclude that rural areas in the mountain districts of Uttaranchal present a special case of a rural economy reeling under the penumbra of backwardness trapped in low level equilibrium, with hardly any linkages for expansion. Its resource base is low and even that has not been adequately harnessed towards creating an expanding productive base within the region. Households undertake multiple activities through diversifying within farm, off-farm and non-farm activities. The end result is highly diversified livelihoods each of which make a crucial contribution to household incomes. Contrary to the general view, our analysis leads us to conclude that livelihoods of the poor are least diversified, as they do not own any productive asset other than their labour. They are unable to migrate owing to their lower educational endowments, which reduce their chances of securing jobs. Also, the cost of migration is too high for them to bear, given their meager incomes. In fact, this is the main reason for their

poor income levels. The marginal land holding households rather have more diversified livelihoods.

The moot question is: why do people diversify their livelihoods. Is it simply because this provides a coping mechanism to augment household income to minimum threshold level or to enhance the existing income above the threshold level? Does it lead to an increase in household incomes to any significant proportion? It has been proved that more diverse livelihoods do not necessarily help to improve per capita income levels. In fact, for nearly 60 per cent households, diversification is a mere coping mechanism that reduces their risks associated with very low income of a single livelihood option. On the other hand, there are a significant percentage of households with larger land holdings (nearly one-fourth) which diversified their livelihoods not out of sheer economic necessity but in order to increase existing income levels so as to minimize the risks of an uncertain future. Their comparatively better resource endowment including higher educational levels enabled them to do so.

For supporting livelihoods, migration is a widespread strategy adopted by rural households—both rich and poor in mountain districts of Uttaranchal. A distinct feature of migration from rural areas of mountain districts of Uttaranchal is its being urban destined, male-specific and of a semi-permanent nature. The relatively low propensity to migrate among the poor contradicts the common finding of many studies on migration that poor and landless tend to migrate proportionately more than other population groups. In most of studies, migration of labour from rural areas is generally treated as a survival strategy as these areas lack employment opportunities. In Uttaranchal too lower resource base and the general economic backwardness of the state has been predominantly responsible for migration. It can therefore definitely be said that migration is a mere survival strategy for a majority (nearly 60 per cent) of migrant workers who belong to the lowest three income strata households. One factor that generally remains unnoticed is that a significant proportion of migration also takes place for the economic betterment. The common strategy of such households is to migrate for acquiring higher education, which in turn enables the migrants to secure

better employment. There is at least one-fourth of such migration from the rural households of Uttaranchal.

Though migration has resulted in many-fold increases in income of the migrant workers, the consequent flow of remittances to the mountain region could hardly bring a significant upward shift in the income class of a migrant household. Thus, remittances do not account for a major share of the household income. However, they provided crucial support to such households in sustaining their consumption expenditure. But remittances account for a small share of investment in agriculture, housing and education of children. In view of the changing pattern of migration—from temporary to permanent and single to family migration—remittances are unlikely to continue to flow in as in the past. This is clearly borne out from the least propensity to remit among highly educated and permanent migrant workers. At the same time, if the migration process continues unabated it will not only drain the educated manpower but also add further to the underdevelopment of mountain region of Uttaranchal.

VII. COMPARATIVE ADVANTAGE BASED OPTIONS: NEED TO IDENTIFY AND SUPPORT

In conclusion, the basic problem of mountain districts of Uttaranchal is not primarily that of unemployment per se but of low productivity and income on account of underdeveloped economic base and virtually stagnant character of the economy. The development policy should exclusively focus on initiating a development process that can unlock the present deadlock of economic backwardness, which in turn can improve the livelihoods of population in the mountain districts of Uttaranchal. Given the mountainous terrain, high degree of inaccessibility and environmental sensitivity of the natural resources, a highly diversified pattern of economic activities is neither feasible nor sustainable for the production of goods that are more economically produced by better endowed plain areas. Clearly, the development strategy therefore needs to focus on commodities and services in which mountain areas have a comparative advantage (Papola, 2003). In this context, the first ever Five-Year Plan (Tenth) of

the state has rightly identified agricultural diversification, tourism, and information technology as the key sectors for injecting and accelerating growth in the state.

It is increasingly being realised that comparatively low per capita cultivated land, characterized by preponderance of marginal land holding size in mountain areas of Uttaranchal will have to play an important role in sustaining the livelihoods of mountain farmers through diversification of subsistence agriculture into a market and demand-based production system. There is a great potential to diversify agriculture into horticulture, vegetable production, floriculture, soybean, and medicinal plant production. It has been clearly established in our study that the diversification of traditional cereal-dominated agriculture into commercial crop production such as fruits and vegetable production has a greater potential to support and sustain rural livelihoods. Case studies on agricultural diversification have amply shown how farming of high value crops has increased food security and employment thus improving the living conditions of mountain people (Sharma, et al., 2001; Badhani, 1998). They also show that accessibility to the wider market network coupled with strong R&D institutions are critical to the commercialisation of subsistence agriculture through the production of high value crops. Some key preconditions for diversification of agriculture are as follows:

(i) Availability of infrastructure, both physical and institutional, at the local level (e.g., irrigation, road, rope ways, post-harvest technology, power, storage, marketing infrastructure, modern communication facilities, extension services, etc.);

(ii) Access to support services (e.g., credit, agricultural inputs, technologies, training, marketing support and information);

(iii) Improved access, particularly of marginal farmers to markets and knowledge about comparatively profitable products and functioning of product markets

(iv) Availability of foodgrains at affordable prices; and

(v) Safeguards against ecological problems (e.g., land degradation, pests/diseases, overexploitation of natural resources, and endangered biodiversity).

All these need strong government support. At present productivity level of commercial crops including fruits and vegetables is very low in the state as compared to other hilly states like Jammu & Kashmir and Himachal Pradesh. The productivity levels can be improved through use of high yielding seeds and plants, rainwater harvesting for irrigation, and watershed development.

In regions where it is neither feasible to grow high-yielding varieties nor desirable to resort to the diversification of crops, value addition to the existing produce could be an acceptable option. For example, hills are natural habitat for growing crops like finger millets, barnyard millets, amaranthus, buckwheat, etc. These crops are rich in various nutrients and can be used as health foods after making a number of products. These need to be supported with more research on their uses and market networks.

The biggest constraint in agricultural development is the extremely limited per capita land available for cultivation (accounting for only 13 per cent of geographical area). There is a scope for bringing another 7 per cent of the geographical area, which include cultivable waste and fallow land, under cultivation with its proper development. The area can be leased out among the economically weaker sections. Considering the fragmented and marginal farm holdings of the majority of farmers, state government could take proactive steps to consolidate farm holdings in order to realize economies of scale.

Since Government of Uttaranchal is focussing on promoting diversification of agriculture in mountain region it is likely to offer a great potential to develop agro-based and food processing industries. This should improve livelihoods of rural population. There is a need to promote investment, both domestic and foreign, in food processing industry. Government should provide assistance towards establishing small and medium size agro parks which will provide a common infrastructure for storage, processing and marketing, thus ensuring that surplus fruits and vegetables do not go waste. The development of food processing industry should be integrated with the development of agriculture.

Tourism is another sector which is being regarded as a very high potential activity for sustaining livelihoods in Uttaranchal on account of the natural beauty, healthy climate, diverse and interesting terrain, high mountains, unique biodiversity and cultural diversity. The Tourism Policy of the Government of Uttaranchal, which was announced soon after the formation of the state, identifies pilgrimage, cultural tourism, heritage, eco-tourism and adventure tourism as the potential sub-sectors. In so far as the contribution of tourism towards improving and sustaining the livelihoods of people is concerned, it varies depending on the type of tourism being promoted and the capabilities of the local people to take advantage of employment and income opportunities offered by it (Sharma, 2000). Basically, the promotion of tourism contributes towards improving the livelihoods of people by (i) generating (a) direct employment both within the industry and related industries/activities such as transport, guiding tourists, pottering, hotels, restaurants and eateries, and (b) indirect employment through the production of items of tourist use and interest such as food articles like, meat, eggs, vegetables and handicrafts, thus ensuring a better realization of income from these activities; and (ii) providing a boost to infrastructure, that also improves accessibility, communication and market information and marketing in respect of the products of the tourist areas. Most of the tourism activity in Uttaranchal is of religious and seasonal nature, which has little impact on the livelihoods of the local people as it is highly dependent on imports from plain areas and does not use much of the transport and services within the state. Resort tourism has the potential for generating some local employment through construction activities, and also in menial jobs. If based on natural resources, it has the potential for providing sustained employment and income opportunities provided the linkages and arrangements are suitably planned. It also has the potential for stimulating the demand for local agricultural, horticultural and livestock products. New forms of tourism systematically planned for areas of ecological interest and rural settlements have shown to have the highest positive impact on the livelihoods of the people in the local communities. It is significant to note that ecotourism, which focuses on nature and biodiversity as items of tourist

interest, and conservation have been successfully practiced in many areas and has large potential for development in Uttaranchal (Papola, 2003).

The major challenges, therefore, include augmentation of infrastructure facilities with particular focus on improving air, rail and road connectivity, and development of new tourist destinations. Enhanced private partnership in developing tourism is equally important. Like-wise, an aggressive and well-planned publicity and marketing strategy are essential to promote tourism. Promoting active participation of local communities is of utmost importance. Another important aspect of tourism is to develop a cadre of trained people at the local level who are knowledgeable about the local mountain environment and can provide quality services to tourists while promoting the local, cultural identity and who can make a positive contribution towards preserving the environment.

VIII. HUMAN RESOURCE DEVELOPMENT: NEED TO LINK WITH POTENTIAL LIVELIHOOD OPTIONS

For achieving higher levels of economic development and secured livelihoods human capital development, undoubtedly, has been found to be a major contributor. No other approach to development based either on physical infrastructure development, capital investment or induction of technology has been found to be successful unless accompanied by the development of human capital, particularly education with a focus on the development of technical skills, enterprise and oraganisational capabilities, and the introduction of health improvement measures. Uttaranchal enjoys the advantage of high level of literacy and education of its population, which has improved tremendously as compared to the national average after the 1980s. Presently, there are nearly 30 per cent educated (high school and above) persons in the population. But the economic backwardness of mountain districts has resulted in a growing outflow of human resources resulting in a drain of human skills from the region. Our results show an abysmally low proportion (less than 2 per cent) of persons with technical education and skills in the workforce. Therefore, greater emphasis needs to be accorded to the promotion of technical and vocational education with more mountain specific orientation with a view to improve the employability and

productivity of the labour force. In particular, there is a need to improve the education and skill levels of the female workers who outnumber males in the workforce in the rural areas of the mountain region of Uttaranchal, and suffer from gender discrimination, almost in every sphere of activity—be it education, health, nutrition, work, mobility, decision-making, etc. More than 95 per cent among them are employed in cultivation and animal husbandry. Thus the immediate task of the state government should be to initiate measures aimed at promoting their productivity. They need to be given reasonable education and technical skills for appropriating their farm incomes. Apart from this, improvement in their technical skills would enable them to diversify their occupation. Needless to emphasise, if concrete improvements in the rural educational system do not occur apace in the mountain areas, the rural labour force is bound to suffer further in the labour market.

These in turn will entail (i) restructuring of the existing education programmes as well as institutions for technical and vocational education and training, particularly at ITI and polytechnic level; and (ii) ensuring participation of a larger proportion of students in vocational and technical courses, particularly of women who form the backbone of the mountain economy of Uttaranchal. To meet the challenge of a switch over from a subsistence to market oriented economy, a great deal of effort would be required to impart training in entrepreneurship development, management of enterprises and marketing on a larger scale. Both government and developmental non-government organisations, can ensure larger participation of various population groups, particularly women and Scheduled Castes in improving their skills.

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