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COUNTRY BACKGROUND

General

Nepal is a small land-locked Himalayan Kingdom sandwiched between the giant nations of China and India, and has a physical area of 147,181 square kilometres. It is situated between 80°15' - 88°10' E longitude and 26°20' - 30°10' N latitude. Its length is about 880 kilometres from east to west and its width, varies from 130 to 240 kilometres from north to south. It is rectangular in shape - more precisely the shape of a broken brick. Although covering a small area, but wide variations in microclimate and topography make it unique. Nepal boasts the presence of the highest mountain (Mt. Everest) and one of the deepest gorges (Kali Gandaki) in the world. The climate is characteristically from subtropical to alpine. The average annual rainfall is about 1,600 mm with 80 per cent of it occurring during the monsoon, from June to September.

The country can be broadly divided into three parellel geographic regions extending from east to west - the *terai*, the hills and the mountains. The *terai* belt or the plains (60-300 m), which lies in the southern part of the country, extends almost throughout the length of the country and covers approximately 23 per cent of its total area. It is this region that produces the bulk of the country's foodgrains. The hills (300m to 3,000m) from the broadest strip among the three belts, run along the central part of the country, and cover about 42 per cent of the total land area. This belt consists of high ridges and steep slopes, including the Mahabharat Range, and is interspersed with many valleys, including the Kathmandu Valley. The northernmost strip, along an altitude of roughly 3,000 metres and above, is known as the mountains and covers about 35 per cent of the total area.

The population of Nepal, estimated as of 1991, is 18.1 million, with a population density of 123 persons per square kilometre of total land area and 586 persons per square kilometre of cultivated land. The population growth rate, which was 1.8 per cent/annum between 1952/54-1961, increased to 2.07 per cent during 1961-71 and to 2.66 per cent during 1971-81 and to 2.08 per cent in 1981-1991. According to the 1981 census, the economically active population is estimated at 46 per cent of the total population and the farming households constitute about 82 per cent of the total households.

The economy of Nepal is dependent mainly upon agricultural production. However not only is the land available for agriculture severely limited by topography, but the agricultural productivity has also declined over time because of improper land use practices owing to mounting population pressure. Water, another abundant natural resource, is grossly undertapped both for agricultural and industrial purposes, mainly due to the lack of adequate investment and marketing problems. Despite the huge potentials of other sectors such as industry, mining, and tourism, their contribution to the economy has been minimal because of the lack of financial and human resources and necessary infrastructure.

Thus, agriculture has remained the leading sector of the economy - employing over 90 per cent of the total population, contributing 60 per cent of the GDP, and occupying up to 80 per cent of the share in exports. Agro-based industries, mainly engaged in cereal processing and edible oil extraction, account for more than 75 per cent of all industrial establishments. The agricultural sector not only dominates the economy but also has a pervading impact on the other sectors in its role as the supplier of raw materials and the consumer of various inputs and services.

The Nepalese economy is undergoing slow economic growth, despite planned economic development efforts over the last three decades. The per capita GDP, at about US$ 180, is one of the lowest in the world.

National Strategies and Policies for Agricultural Development

Development Plan Objectives, Policies, and Resource Allocations

Agriculture has been accorded high priority, particularly from the Fourth Plan period (1970-75) onwards, although the importance of the sector had been appreciated since the first formulation of systematic plans in 1956. The First Plan emphasised the increase of agricultural production through supply of modern inputs and dissemination of production technologies through establishment of rural cooperatives. In the Second Plan, the concept of specialisation in livestock, horticulture, and food crops, according to the geographical regions of the country, was introduced although the concept was never translated into actual projects during this or any other subsequent plans. The Second Plan also emphasised the establishment of research centres, the need to disseminate the findings of research, the need for monitoring and evaluating various programmes, and systematic collection of data pertaining to agriculture. However, it was only in the Third Plan that output targets were fixed. In earlier years, the major focus of the Government's development activities, particularly in agriculture, was the *terai*.

However, recognising the needs of different regions as well as the ecological differences, the Fourth Plan introduced the strategy of "corridor development" designed: (i) to minimise disparities in progress in different regions; (ii) to optimise the comparative advantages of the different regions - surplus manpower and potential for production of livestock and horticultural crops in the mountains and hills and surplus foodgrains, supplies of consumer goods, and access to Indian markets in the case of the *terai*; and (iii) to integrate the economies of the mountains, hills, and the *terai*.

The Fifth Plan treated agriculture as the lead sector of the economy; revived the concept of specialisation according to geographical regions, i.e., livestock in the mountains, horticulture in the hills, and foodgrains and cash crops in the *terai*; and expanded the concept of "corridor development" by designating four development regions, each with a development centre in order to establish a north-south growth corridor. Recognising the limitations imposed by transport difficulties as well as by resource endowments and existing production patterns, the Sixth Plan emphasised limited specialisation and increased food production in suitable areas in the hills to meet their own requirements. In addition, the problems of environmental deterioration and ecology were given special attention. The objectives of the Seventh Plan, which are similar to those of the Sixth Plan, are to: (i) increase production at higher rates; (ii) increase productive employment opportunities; and (iii) fulfill the minimum basic needs of the people. The plan accords overall priority to the development of the agricultural sector and emphasises the development of forest and water resources and soil conservation.

All plans have argued in favour of top priority to the agricultural sector. However, the lion's share (between 30 to 40%) of the development expenditure was absorbed by the transport and power sectors up to the Fourth Plan because Nepal lacked the basic transportation and communications' infrastructure essential for rapid overall development of the country. With the gradual development of a nucleus transport and communications' network, resource allocation to the agricultural sector also increased slowly. Since the Fifth Plan, agriculture has been treated as the lead sector of the economy and accorded topmost priority. The share of agriculture in the total development expenditure increased from 13.6 per cent in the Second Plan to about 30 per cent in the Sixth Plan. The Seventh Plan allocated 34.3 per cent of the total development expenditure for the development of the agricultural sector.

Crop Development Strategies and Policies

The First Plan emphasised increased crop production through the supply of modern inputs and dissemination of production technologies. The Second Plan emphasised the need for establishing research centres, disseminating the findings of research, monitoring and evaluating various programmes as well as the systematic collection of data. During the Third Plan, production of food and cash crops was emphasised by setting production targets. The Fourth and Fifth Plans emphasised crop production on a regional basis and this pushed cereals and cash crops into the *terai*. The Sixth Plan, recognising the problem of food shortage in the hills and mountains, emphasised the need for increased food production in the region and adopted a policy of carrying out intensive agricultural development activities in the river basin areas of the hills and mountains. The Seventh Plan (1985-90) envisaged making the hills self-sufficient in foodgrains in the following 10 years by executing a foodgrain production programme as a campaign. The plan also stressed problem-oriented adaptive research with an emphasis on rainfed farming. All the plans and policies regarding crop development have laid maximum emphasis on the increased use of improved seeds and chemical fertilizers and the optimum use of irrigated areas.

Despite the strong emphasis on the crop development sub-sector of agriculture, the performance was not encouraging. The total crop production increased due to an increased area under cultivation, but the crop yields are declining year after year. This is mainly because of the lack of understanding of the hill and mountain situations. The HYVs, which were successful in the *terai*, were introduced in the mountains. Because of such agricultural policies, crop yields did not improve. The reason is that the prerequisites for HYVs (e.g., improved seeds, chemical fertilizers, agro-chemicals, and irrigation) were not easily available in the region because of the inaccessibility, and marginality characteristics of the mountains. Only a few years back, this reality was recognised and one separate chapter entitled "Hill and Mountain Agriculture" was added to the agricultural component of the nation's periodic five year plans. However, in the absence of operational plans and programmes, this strategy and policy has not been able to bring about substantial improvement. The country's impetus in order to make the hills and mountains self-sufficient in food production may not be viable from the sustainability point of view, although technically it is feasible. Therefore, the crop development policy and strategy should be emerged with a fuller understanding of the hills and mountains. The local resource-centred production pattern, in general, could be the appropriate strategy since it will encourage the adoption of those agricultural technologies that thrive on local input materials. This strategy will flourish in remote areas whereas improved technologies may also do well in accessible areas where obtaining the necessary input materials are not problematic.

Horticultural Development Strategies and Policies

His Majesty's Government of Nepal (HMG/N) has emphasised that horticultural development be given higher priority in the hills. In order to increase horticultural production to meet the increasing demand for fruits and vegetables, particularly in the urban areas, HMG/N has adopted fruit and vegetable production programmes concentrating in areas along road networks, in urban areas, and in densely populated areas. In order to intensify horticultural production, emphasis has been given to designing production programmes in such a way that the agencies concerned should act jointly in the production pockets to help the growers.

Emphasis has been laid on carrying out research on horticultural crops to develop production technologies in conformity with the problems faced by the farmers in growing horticultural crops. However, because of the lack of necessary support in terms of resources and manpower allocation, research activities in this sub-sector have been minimal and this, in fact, has hindered the effectiveness of horticultural development programmes.

Besides these technical bottlenecks, one of the biggest problems the horticultural sub-sector is facing is the lack of market integration. Large areas have been brought under apple farming in Jumla and Mustang, but the farmers are facing acute marketing problems because the markets are far away from the production areas. Nepalgunj, Pokhara, and Kathmandu are the major markets but because they are accessible only by aeroplanes it becomes very expensive for consumers to buy the airlifted fruits. Despite the ample production of fruits, farmers are not accruing any benefits. Rather, they are frustrated and farmers in Helambu, which is not that very far from the Kathmandu Valley but which is inaccessible, have even started to uproot the apple trees and use them as firewood. In the absence of effective operational plans and programmes, farmers will not be able to harness hill and mountain 'niche'. Rather they will go on to cultivate foodcrops which will not contribute to sustainable production in mountain agriculture.

Livestock Development Strategies and Policies

Livestock development policies in the past have generally been weakly spelled out. The general policies that have been adopted in the past realise the need for increasing livestock production without increasing the livestock population. The fourth and fifth plans emphasised the policy of concentrating livestock development in the high hills and mountains and stressed the need for expanding extension and other related services through the development of middle level technicians.

With a view to benefitting farmers, the policy adopted in the Fifth Plan focussed on the role of the private sector in marketing livestock products and producing livestock inputs such as breeding materials, grass seeds, fodder saplings, and concentrated feeds. The Sixth Plan has emphasised the need for concentrated efforts on problem-oriented, applied types of research, including studies on local resources such as native breeds of livestock, local species of grasses and their use and proper use of agricultural by-products or crop residues as animal feeds. The Seventh Plan aimed to attain self-reliance in livestock products through increased production and emphasised that livestock development programmes be concentrated along road networks, urban areas, and densely populated areas and that the pasture problems of the northern areas be solved. The plan also stresses increased production and distribution of livestock inputs and effective livestock extension and animal health services.

In the past, all sectoral and sub-sectoral development strategies were formulated in isolation. Integrated crop-livestock-forestry farming practice is basically a traditional one. However, emphasis on this is quite recent; particularly the integration of forestry with farming systems was recognised fully only a decade ago. The agricultural development strategies and policies were not designed in an integrated manner. Livestock were not really considered in designing crop development programmes and vice-versa. In this context it is not surprising to note that the forestry sector never thought of livestock while designing their development strategies.

Hence, the livestock population increased also, as a result of improved animal health services while the animal feed supply situation remained the same, which consequently accelerated the overgrazing/degrading of the forest/pasture resources. Therefore, livestock productivity, despite some improvements in genetic materials, has not really improved. The livestock credit policy has encouraged farmers to acquire animals but without making assessments of farmers' carrying capacities and without encouraging an increase in the feed resource base.

Finally, the livestock farming 'niche' of the high hills and mountains can only be harnessed when appropriate development strategies and policies are formulated and implemented. In this context, not only the crops but also forest development strategies must be guided by livestock considerations and vice-versa. Livestock pricing policies, so far formulated and implemented, are yet to prove meaningful.

Government milk prices are always below market prices and this has not encouraged farmers to produce milk. The increase in the price index of livestock products is always much lower than that of agricultural commodities.

Forest Development Policies

The Forest Nationalisation Act of 1957 brought all forest lands under government control. The pattern of forest resource use before the act, particularly in the hills, was based on a system of harvests regulated by the villagers which enabled prime species to regenerate after an initial harvest. Nevertheless, because of the increasing population pressure on forest lands, the act was promulgated with a view to preserving an important source of national wealth and providing for protection and controlled exploitation by the people. Unfortunately, the act was misunderstood by the people who believed the Government had removed their right to free access to and use of the forests. Under these conditions, villagers rapidly ceased to employ any traditional rules for forest management and thus forest management at community level just disappeared. Fuelwood, timber, and fodder were collected indiscriminately and the rate of forest destruction was significantly accelerated.

In recognition of the need to involve local communities in protection and regeneration of forests, the 1957 Act was amended in 1977. The amendment called for the designation of the *Panchayat* (former) Forest (PF), *Panchayat* (former) Protected Forests (PPF), religious forests, and contract forests in order to encourage private planting and community sanctions against destructive practices.

The current policy is to promote community forest development, operating within policy guidelines that provide for greater community responsibility towards forest management and protection. Both the sixth and the seventh plans emphasised the policy of increasing people's participation in management and protection of forest resources. Development of community forests has been given high priority. However, due to lack of effective operational plans and programmes, the policies have not had much impact on forest conservation and protection. Still, the people fear that once the (former) PF, PPF, and community forests (CF) are revitalised through afforestation/reforestation with the help of people's participation, the Government may have control over the forests. In fact the Government has also made a provision for lease forests, but the people have not dared to come forward and develop the forests as private forests on lease. Another issue is that unless they are assured of having adequate fodder for their animals from the reforestation and afforestation programmes, people will not be ready to participate wholeheartedly in the Government's forest development programmes (e.g., PF, PPF, CF, etc).

Until recently, timber and fuelwood production was the prime target of the forest development strategy, while ignoring and undermining the fact that the forest is the major source of animal feed. Finally, unless the conservation and utilisation rights of forest/pastureland and their products is fully assured for local communities, forest development will not take place in a sustainable manner.

Mountain Farming Systems

General Features of the Hills and Mountains

The hills and mountains lie in the northern part of the country and cover a total area of 113,390 sq. km. of which 9.8 per cent is cultivated land, 41 per cent forest, 14.8 per cent grazing land, 19 per cent snow covered, and the remaining 14.5 per cent rock out-crop and water bodies. The population (1985) in the region is about 9.2 million with a population density of 81 persons per sq. km. of the total land and 827 persons per sq. km. of culitivated land.

The topography is variable with slopes of up to 80°. Farming is being practised on slopes up to 30°. The hills are intersected from north to south by about 6,000 rivers. The deep river gorges have a major influence on the agriculture in the region; in limiting transport and communications; and in creating numerous microclimates that are conditioned by elevation, direction, and steepness of the slopes.

The climate in the hills and mountains is controlled by the monsoon winds, elevation, slope, and aspect. The climate is extremely diverse, being subtropical in the lower hills and river basins to alpine in the higher mountains. The rainfall is highly seasonal with about 80-90 per cent of the total amount falling during the four monsoon months (June-September), followed by eight months of negative water balance with scanty rainfall. Average annual rainfall varies from around 2,500 mm in the eastern and central hills to less than 1,000 mm in the western hills. On the northern side of the Himalayas, there are some high altitude valleys that lie in the rain shadow and have an arid to semi-arid cold climate. Temperature varies with altitude and, therefore, decreases from south to north. Mean monthly temperature ranges from about 2.5°C in summer (May-June) to below freezing in winter (December-February), depending upon elevation, slope, and aspect. Freezing temperatures are rare in the area with up to 1,300 m elevation on south-facing slopes, but they do occur from November to February on north-facing slopes and at higher altitudes. The permanent snowline starts at 4,800 m, below which snowfall is seasonal.

Hailstorms in the hills occur in two spells: first during March-May and second during October-November. Snowfall and frost are major constraints for winter crops at higher altitudes. In general, soils in the hills and mountains are medium to light-textured and dominated by of coarse sand and gravel and have low to moderate water holding capacities. However, in river valleys, fine sand and silt are commonly found. Soil reactions are moderately acidic and the organic matter, nitrogen, phosphorus, and potash contents vary from low to moderate. Soils on steep slopes are usually eroded, stony, and poor for agriculture. Poorly managed, marginally cultivated, and degraded forest and grazing lands are prone to very high rates of soil erosion. Most parts of the hills and mountains are inaccessible by motorable roads, limiting the smooth flow of goods and services required for the development of agriculture.

Small and subsistence farmers are predominant in the hills and mountains. Most farmers farm less than 0.5 ha and it is not uncommon for a single holding to be divided into seven or eight parts. The family size ranges from six to eight persons. The average farm size is too small to generate marketable surpluses.

The Farming System

The limited transport and communication infrastructure, unavailability of reliable markets and production inputs, and high variations in microclimates, accompanied by large family sizes on small fragmented farms on hill terraces and steep slopes, have led the farmers in the hills and mountains to adopt the subsistence-oriented mixed farming systems which are characterised by substantial diversity and also a high degree of self-reliance. The system uses a great variety of crops, including perennial fruit and fodder trees and livestock on farmland, and depends to a large extent on available forest and rangelands which supply fuelwood, fodder, compost, timber, poles, and other products to the system. Thus, crop production, animal husbandry, and forestry constitute the three main, closely and inseparably integrated, components of the mountain farming system.

Crop Production

Crop production in the hills and mountains is practiced on valley bottom land, small plateaux along the river banks, and on terraced slopes of which about 80 per cent or more consist of rainfed upland terraces, and 20 per cent of less irrigated lowlands. Main crops in the region are maize, rice, and wheat. In 1987/88, these crops were grown on 37, 25, and 19 per cent of the total cropped area. Other widely

grown crops are millet (10%), potatoes (4%), barley (2%), and oilseeds (2%). Legumes occupy relatively small areas in the region and some of the more common ones are soyabean, groundnuts, blackgram, and horsegram.

Cropping patterns in the region are usually maize-based on rainfed uplands and rice-based on irrigated lowlands, although potato-based patterns may be common at higher altitudes. The predominant cropping patterns on uplands are maize, relayed with millet and maize, followed by oilseed, potatoes, barley, or fallow. In the lowland areas, rice is usually followed by wheat and sometimes by barley, potatoes, or fallow. At higher altitudes, potatoes are usually grown as monocrops and are sometimes followed by buckwheat.

Traditional farming practices predominate in the hills and mountains. Apart from wheat, there is very limited use of improved seeds in maize, rice, and potatoes, and only local cultivars of other crops are grown. The use of chemical fertilizer is quite low and is mostly limited to accessible areas. The traditional method of maintaining soil fertility is through application of farmyard manure (FYM) or compost prepared by mixing manures with forest litter and crop residue. Composts applied to the fields are generally left in the open for several days and thus lose up to 52 per cent of the phosphorous content. Although such manures help replenish soil fertility, they cannot maintain fertility entirely when cropping intensities are as high as is currently the case. Because cereal crops dominate the existing cropping patterns and legumes play a rather minor role, the beneficial effects of the latter on soil fertility have been limited.

No on-farm operations are mechanised in the region, apart from in the Kathmandu and Pokhara valleys where a number of power tillers are in use. A pair of draft animals and a simple wooden plough are the usual means of land preparation on larger fields, while on narrow terraces only hand hoes are used. Virtually all other operations are carried out manually, including on-farm and off-farm transportation. Substantial mechanisation in the region is not feasible because of small farm sizes and their fragmentation, slope conditions, and limited access to the fields.

Cropping intensities are highly variable. Overall, the average cropping intensity is about 158 per cent on irrigated land and 130 per cent on unirrigated land (ADB 1982). The average yields of crops in the region are low and have reportedly declined over time. The average yields of maize, rice, wheat, millet, and potatoes in 1987/88 were estimated at 1.30, 1.97, 1.10, 0.91, and 6.49 metric tons per hectare respectively. The declining trends in crop yields have been caused mainly by cultivation of marginal lands, declining soil fertility, and general environmental deterioration.

The fruits commonly grown in the region are apples, pears, peaches, plums, and walnuts (at higher altitudes) and mandarins, limes, and lemons (in the mid-hills). Vegetables are grown in most areas for home consumption. Commercial cultivation of fruits and vegetables is usually not common because of transport and marketing problems. Fodder and fuelwood trees are common on upland terraces in most of the areas.

Livestock Production. Livestock production is an integral part of the farming system in the hills and mountains. It is regarded as the second major economic activity next to crop cultivation and contributes 20 to 27 per cent of the household income. The major roles of livestock are to provide manure and draft power for cultivation. In addition, livestock products such as milk, ghee, and meat contribute to the nutrition of the farming community. Livestock products in the form of ghee, wool, live animals, and hides are also traded for cash income.

Cattle, including yak and nak, buffaloes, goats, sheep, pigs, and poultry, are the major livestock species found commonly in the hills and mountains. It is estimated that in 1985/86, the livestock population in

the region consisted of about 4.3 million cattle, 1.9 million buffaloes, 3.4 million goats, 0.57 million sheep, 0.31 million pigs, and 6.4 million poultry (APROSC 1986). These figures indicate that the livestock density per unit of cultivated land in the region is one of the highest in the world.

Farmers in the region maintain mixed herds rather than pure herds. Livestock numbers generally increase with the landholding size, while livestock density per unit of cultivated land tends to decrease with the farm size. The different sources of feed for animals in the region are crop residues, fodder from farmland as well as forests, terrace wall vegetation, grazing on farmland (during off-crop season), community pastures, rangelands, and forests. Larger farms have more feed resources for stock -- in larger areas of land post-harvest residues are available for grazing and more crop by-products for feed. Small farmers, who make up the greatest percentage in the hills, cannot feed their animals from their land only and are, therefore, exerting the greatest pressure on communal feed resources - the forest and grazing lands.

Adult male cattle are used as draft animals (mainly for ploughing), whereas female cattle are kept mainly to breed replacement bullocks, although they also produce small quantities of milk. On an average, a pair of bullocks covers 2.08 ha of cultivated land in the hills and mountains. *Chauri* - a cross of yak and nak, with hill cattle and female buffaloes are primarily kept for milk production. Livestock productivity in general is low. The average per lactation milk yields of cows, buffaloes, and *Chauri* are estimated at about 300 litres, 400 litres, and 475 litres, respectively (ADB 1982 and APROSC 1981).

Livestock production in the hills and mountains is characterised by predominance of poor breeds, weak animal health and extension services, and poor feeding due to the dwindling feed resources. Shortage of fodder is the most critical aspect of livestock production in the region. The hill areas have the most pronounced fodder deficit, resulting in serious long-term damage to the environment. Deterioration occurs because livestock numbers are larger in the hills and the terrain, with its steep slopes and light soils, is very susceptible to erosion.

Forestry and Pastures. Forests, rangelands, and pastures constitute an integral part of the mixed farming system in the region. Forests supply fuelwood, timber, poles, bamboo, food items and other minor products to the farming households, fodder and bedding materials to livestock, and compost materials to croplands for the maintenance of soil fertility. In addition, forests in the catchment areas of streams, rivers, and lakes influence the supply of water for drinking and agricultural uses. Forests have an enormous role to play in protecting the fragile, hilly topography from natural calamities such as intense rain and preventing landslides and soil erosion.

LRMP has estimated that forests and grazing lands respectively cover about 41 and 14.5 per cent of the total physical area (113,390 sq. km.) in the hills and mountains. The situation is, however, worse than figures suggest because many areas of the hills, classified as forests, are in fact degraded wastelands with few or no standing trees. Similarly, most of the pasturelands are believed to be overgrazed and in poor condition. Climate, elevation, and slope aspects have the pronounced influence of the types of forest found in the area. At lower altitudes (below 1,000m), subtropical, deciduous, broad-leaved, hardwood forests, consisting of *Pinus roxburghii*, *Castanea indica*, *Schima wallichii*, *Alnus nepalensis*, and others, extend from 1,000m to 3,000m. Above this and up to 5,000m lies the alpine vegetation zone with forests of rhododendrons and shrubs and, in other places, areas of open grassland which are often overgrazed.

Various studies have estimated the extraction rates of major forest products and have argued that these rates, generally, exceed the carrying capacity of forests. According to MPFS (1988), timber and fuelwood extraction from forests for household use have been estimated at 0.07m^3 and 378 kg per capita per year, respectively. Rajbhandary and Shah (1981) estimated that about 72 per cent of the total feed requirements of livestock are supplied by off-farm resources (forest - 23%, rangelands - 34%, and wastelands - 15%). In addition, leaf litter, pine needles, and grasses are brought in as bedding for livestock and the resulting

compost/FYM is applied to croplands for maintaining soil fertility. Khandke et al. (1984) estimated that about 50 per cent of the litter production is removed annually from some forests in the hills. Minor forest products, such as tubers, fruits, shoots, mushrooms, honey, fish, bamboo, and medicinal herbs, supplement the diet as well as the family income of small farmers. However, data on quantification of these products are lacking.

A rapid expansion in human population with limited land resources and a heavy dependence of the farming system on forestry have led to overexploitation of forest resources (to meet the increasing demands for fuelwood, fodder, timber, bedding, and compost materials and depletion with the consequences of increased soil erosion, landslides, shortage of fuelwood, fodder, bedding and compost materials, decline in soil fertility, and eventual decline in agricultural productivity in the hills and mountains. The rapid deterioration of the ecological balance in the region and the need to reverse this trend has begun to be realised. The magnitude of the task and the lack of management capability and resources needed to rectify the situation make the problem extremely formidable.