

Rethinking About Reshaping Hill Agriculture Development Strategies

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ABSTRACT

Among the 34 million people that inhabit the Himalayan region, a large percentage is of the hill farming communities. They sustain largely on subsistence farming which they practice on marginal rainfed and some irrigated farmlands occupying 15.8 per cent of the total area of the Himalayas i.e., 53.8 million hectares. The rest of the Himalayan landscape includes rangelands, pastures, wastelands, land- grazing areas and the forests; accounting for nearly 69 per cent of the Himalayan area. Another 15.2 per cent is under permanent snow cover and rocky mountains and serves as a perennial source of water. The entire Himalayan range is favourable for growing a wide range of fruits, vegetables and other cash crops. Despite, hill agriculture has some inherent constraints of remoteness and inaccessibility, marginality and fragility in terms of moisture stress and the poor soil conditions and a short growing season. Added to these are socio-economic constraints such as small holdings, poor productivity and post-production management, labour shortages, poor marketing and networks linkages and lack of entrepreneurship. All these have led to under-utilisation of resource bases in the hills and limited generation of surpluses. For sustaining the livelihoods of hill farmers on agriculture, it is necessary that hill agriculture is understood in the right perspective. Precisely for these reasons, hill agriculture is defined as a livelihood system which includes all land based activities on which farmers are dependent to make a living, such as cropping, horticulture, livestock, sericulture, rangelands and pastures, forests etc. The new mantra –“Given the opportunity and supportive conditions, hill people are masters in using natural resources prudently” governments only need to create an enabling environment, in place of a whole range of restrictive regimes which have alienated hill farmers from their own environment - making them refugees in their own surroundings” Keeping in view the unique and special agro-ecological and socio-economic setting, National Policy on Farmers outlined by the **National Commission on Farmers (2006)** has strongly recommended strengthening the interdependency and synergy between all the sectors of agriculture, viz., crops, horticulture, livestock, fisheries, forestry and the associated natural resources.

Keywords:Hill agriculture, Hill development, Hill agriculture development, Agriculture development strategies, Challenges, Constraints, Agriculture development

INTRODUCTION

A major part of the Himalayan region is inhabited by a large percentage of the hill farming communities (mountains included) relying mainly on subsistence farming. Whereas the rest of the Himalayan landscape includes rangelands, pastures, wastelands, the so called bush land-grazing areas and the forests. The remaining areas are permanent snow cover and rocky-mountains and serves as a perennial source of clean water to the hill people as well as to the rest of the nation. Agriculture is the primary economic sector contributing to about 45 per cent to the total regional income of the Himalayan inhabitants. It has been noted that a vast majority of the farming households in the Himalayan states have landholdings of less than 0.5 ha or small landholders with farms of 0.5 to 1.0 ha. For instance, while the average land holding

in Himachal Pradesh is about 1.2 ha, it is even smaller (1.01 ha) in Uttarakhand. On the other hand, in the north-eastern Indian Himalayas, shifting cultivation accounts for 85 per cent of the cultivated area and supports over 1.6 million people, largely tribal communities. However, the tribal families once food self-sufficient, are now barely able to produce enough food for the whole year. Further, about 76 per cent of the gross cropped area of the entire Himalayan region is under staple food grain crops. The studies show that the production of food grains has not declined in the Himalayas as much as is often thought but may decline in the future due to shift towards cash crop farming. In the western Himalayan region, while, wheat is the main crop and rice, maize, millets, barley and buckwheat, pulses and oilseeds are also widely grown. However, Uttarakhand is unique in the sense that it

has more area under millets and pulses. In addition, potatoes and a variety of off-season vegetables, spices, and fruits are also widely grown in the Himalayas. In the north-east, rice is the staple food crop occupying about 81 per cent of the cropland area under food crops. Crop survey assessments show that the area under paddy and maize is declining all over the Himalayas but the area under wheat remains unchanged. This reduction in area is largely due to the shift towards cash crops like fruits and vegetables.

Increasing Horticulture Trends in the Hills

The entire Himalayan range is favourable for growing a wide range of fruits, vegetables and other cash crops. Small areas with their own micro climatic conditions provide suitable sites for growing particular crops, such as apples, citrus fruits, walnuts, plums, peaches, bananas, mangoes and pineapples; vegetables such as tomatoes, radish, potatoes, cabbage, cauliflower, other cash crops like ginger, chillies, cardamom and saffron; and flowers such as orchids, gladioli, marigolds and chrysanthemums. The fruits and vegetables cover around 16 per cent of crop land. The proportion of farmlands under fruit crops is much higher in the western Himalayas (20 per cent), than in the central and eastern Himalayan states (5 per cent). The present trends towards rapid expansion of horticultural crops have positive implications for improving the food and economic security of the hill farmers (Partap, 2011).

Livestock Integral to Hill Agriculture

Indian Himalayas support about 50 million domestic animals (1.6 animal/ ha); cattle (47.5 per cent), goats (15.8 per cent), buffaloes (12.3 per cent) and sheep (10.4 per cent). Livestock produce comprises dairy products, wool and manure. More precisely, livestock is higher in the Himalayas than in the plains but it also remains a fact that the region has a niche for livestock based livelihoods that one finds in the large area under rangelands and highland pastures. A large proportion of livestock species is raised under mixed cropping systems. The land holdings are small and livestock supplement the family income whereas animal dung and

bedding material provide manure and compost for the crops (Partap, 2011).

The Constraints of Hill Agriculture

However, hill agriculture has some inherent constraints of remoteness and inaccessibility, marginality and fragility in terms of moisture stress and the poor soil conditions and a short growing season. Added to these are socio-economic constraints such as small holdings, poor productivity, poor production management, labour shortages, poor post-production management, poor marketing and networks (lack of market development) and lack of entrepreneurship. All these have led to under-utilisation of resource bases in the hills and limited generation of surpluses.

Nevertheless, the Himalayan areas also have specific advantages that can be harnessed to good effect, in particular the wide diversity and the presence of niches particularly suited to certain crops, e.g., the apples in Himachal and saffron in the Soppore valley of Kashmir, pashmina goats and yak in the highlands of Ladakh or in Arunachal Pradesh. It offers hope to develop these comparative advantages, promote investment in such niche areas as part of the efforts to improve farm economy in sustainable ways. Many areas are witnessing, increasing out migration. It has created a unique situation in which a sizeable percentage of women are today heading farming households and the economy of these households is at best known as money order economy.

With few exceptions, the constraints on improving horticulture crops in the Himalayas include poor orchard management practices, quality planting material, seeds and other inputs, little access to extension services and marketing. Across the Himalayan region, farmers face problems in accessing market information, postharvest processing and value adding skills. Because of a lack of regular and reliable markets, hills farmers in many areas are finding it too risky to diversify into more lucrative high value crops. As shortage of fodder and feed is rampant in the hills, farmers complain, "livestock fodder problem is more acute

than the human food problem in the hills". The rangelands and grasslands are operating at one-fourth of their productive potential. Most of the fodder and grazing areas have been infested by non-palatable invasive species, such as lantana, eupatorium and congress grass. As an estimate, there may be up to 70 per cent shortage of fodder faced by the Himalayan farmers (Partap, 2011).

Crop Land Scarcity and Water Scarcity

Livelihoods of majority of the population in the Himalayan region revolve around agriculture. One may call land is the nucleus of all socio-economic activities. For majority of the small and marginal farmers, their wealth and poverty is associated with the ownership of the size of land holdings (Partap 1995, 1999). For a large number of small and marginal farmers of the Himalayan region, shrinking crop land holdings is a key concern for managing food and livelihoods (Pokhriyal and Bist, 1988; Partap, 1998a). Rural development efforts across the Himalayan region face a serious challenge of finding a solution to this problem (Partap, 1998b). The per capita available cropland in hilly areas across the Indian Himalayan states is already too little to sustain livelihoods. The consequences of this situation to sustaining livelihoods and management of land resources are serious indeed.

While, down in the valleys, new human settlements, urbanisation, industrialisation and government infrastructure development activities, all are competing for converting the valley crop land into non-farm use. The implications of cropland scarcity in the hills are manifold, in the form of indicators of the unsustainability of hill agriculture with respect to land resources, production and livelihoods. The unsustainability indicators are in fact hidden responses of the farmers to a lack of access to croplands of adequate size and quality. The state of croplands in the hill region and its impact on the food insecurity and continuing poverty paint a grim picture for sustainable hill agriculture. The key issues that emerge are the shrinking size of land holdings, erosion from sloping farmlands, a decline in soil fertility and above all a widening cycle of

inadequate food production-food insecurity-poverty-resource degradation and increasing unemployment and frustration (Partap, 2011). Further, there is water scarcity for drinking and irrigation in the hills due to increasing climate change impacts. It highlights the fact that "unless urgent solutions are found for cropland scarcity and water scarcity so as to make farming based livelihoods sustainable; agriculture as a source of sustenance for the hill farmers will continue to lose its significance".

Agricultural Diversification: Emerging Issues

Though some hill states have been successful in agricultural diversification through fruit and vegetable farming which helped to improve the livelihoods of small and marginal farmers, diversification is already causing the problems and the challenge of sustaining and widening the benefits of hill agricultural diversification is beset with a range of new problems such as,

- Large proportions of marginal farmers are yet to benefit from agricultural diversification due to scarcity of crop land or irrigation water.
- Second generation problem of cash crops farming.
- New generation of farmers: the educated unemployed youth exploring entrepreneurship opportunities. Millions of educated unemployed youth across the Himalayan states, mostly from the farming families are waiting for the jobs. Even though many of these educated unemployed youth have acquired the traditional knowledge of farming from their families, they no longer find it remunerative to get engaged in it; yet they need to be equipped with the necessary knowledge and skill in farming, entrepreneurship and agribusiness.
- Unexplored comparative advantages of hill agriculture.

- Biological degradation of support lands – the waste lands.
- Climate change impact on hill agriculture.
- Weak mountain agricultural research and extension support services.

Learning from global experiences to develop a new thinking on Hill Agriculture

1. The Mountain People and Policies in Japan

Japan has over 68 per cent hilly area with a 30 per cent cropland of the nation. After decades of neglect and bias against the hills, agriculture and people inhabiting the hills faced an uncertain future. Hill agriculture in Japan faced difficulties of asocial nature. The alarming rates of households were abandoning hill farmland and over 3.8 per cent of the nation's farming area was abandoned by 1998. As a result, hill farming communities of Japan faced the problem of extinction due to decrease in agriculture and an increase in forest area, depopulation and the aging of residents (Nakagawa, 1998; Sugaya, 1998). As industrial growth offered ample job opportunities for the younger generation of hill farmers, they seemed no longer interested to continue farming their family land. Japan has a paradoxical situation, where 91 per cent of its agricultural land and 40 per cent of its agricultural resources actually exist in the hills.

The factors responsible for the declining hill farming in Japan include a decline in the number of farmers and their age, concerns over future prospects of liberalised agriculture trade, not enough job opportunities in the hills, delay in social capital infrastructure development, small land parcels making mechanisation difficult, intricate topography and small size of land holdings, lack of adequate access roads limiting use of farm machines, higher costs of land grading, irrigation etc. (Sugaya, 1998). The implications of the rising rate of abandoned farming includes an increasing national food insecurity, a loss of hill crops; and loss of indigenous knowledge of hill farming threatening Japan's long term national food security interests. Having realised the gravity of the situation, Japan

made a strategic turnaround in its hill agriculture policy. It reframed its policy which considered declining hill agriculture as a national crisis, and made serious efforts to reverse the trend.

The Depopulated Areas Emergency Act and the Mountain Villages Development Act were enacted to conserve hill agriculture rather than forests. To support niche based high value farming and income generating options for the hill farming communities R&D support focused on; vegetable farming and floriculture with special highland products; animal husbandry on grasslands; labour intensive organic farming; developing forestry; micro enterprises development – food processing, etc., adding value to the local farm produce; changing tourism development approach to build stronger tourism- farming linkages “farming for tourism”. The Shikoku National Agricultural Research Station was mandated to focus its research on “slope land agriculture.” The thrust was on reversing the trend of declining number of mountain farmers and reducing the area of hill agriculture. What has happened in Japan, carry a very important message for the future of hill agriculture in India. Looking deep inside the Uttarakhand hills, one finds that similar conditions may be developing in several areas of the Indian Himalayas and that hill agriculture in India may face a similar situation sooner than later (Partap, 2011).

2. Innovative Hill Agriculture Policies of South Korea

Korea has about 66 per cent hilly area with 33 per cent of farmland of the nation. It has been promoting the policy of “Agricultural Promotion Area (APA)”, which favoured only plain areas for an agricultural investment priority. For this reason, hill agriculture falling under the “Less Favoured Areas (LFA)” was neglected for investment. As a result, Korean farmers living in the hills found it harder to survive under poor production conditions. The quality of life in the hills was certainly lower than in the cities, encouraging the younger generation of farming families to leave farming and the farmland for jobs and better livelihoods in the cities. The hardship of upland farmers was further

compounded by the shortage of farm labour because of job-induced migration of young upland folk to urban areas. It was a key factor that contributed to accelerated abandonment of agriculture and farmland in the Korean uplands (Partap, 2011).

Korea made a shift in its policies, considering that even if the hills are less productive, continuing farming on these lands may yield a higher positive externality to society than the favourable production condition areas. Higher the positive externality of these marginal areas, higher will be the price and percentage of taxpayers "Willingness to Pay (WTP)" so as to maintain farming in the marginal upland areas (Gim, 1998). The trend has encouraged the government to consider reshaping of the policy of the agricultural promotion zone for investment and now it has also included hill areas in it. Thus, Korea has adopted a unique tax policy for city dwellers called "Willingness to Pay" and uses the revenue generated for improving farming and livelihoods in the hills. The other relevant strategy was "the marginal and improvement programme (MALIP)" for the hilly and mountain areas. It was two-dimensional. One, it was to improve the use of marginal upland as productive land; two, it was to promote the use of marginal upland for other farm and non-farm purposes such as rural resorts, livestock farming, fruit farming and industrial development (Gim, 1998). Further, a scheme for compensating mountain farmers through direct cash payment to continue farming their farmlands was also introduced. It had two key objectives, increase food supply and preserve traditional farming areas on the hill landscapes. These strategic shifts paid in reversing the unsustainable trends. The lessons of the Korean experience are summed up by Gim (1998) as follows, "When the agricultural policies and measures consider only economic values, they are not sustainable and future generations may suffer access to resource base. Therefore, the policies favouring direct and indirect support to maintain hill farming are necessitated by both ecological and economic considerations."

3. Guided Mountain Farming in Switzerland

Mountain farmers of Switzerland are considered by law as undertaking ecological and economic services (tourism attraction) to the nation through maintaining their homesteads and farming in the mountains. Land use laws restrict farmers from carrying out crop cultivation. They can only have cows and the sale of milk per family is also highly regulated, encouraging household name in cheese. An important point to note here is that the hill farmers are paid adequate compensation due to their direct ecological services and indirect contribution to the tourism economy of the nation. This compensation is paid to them from the national revenue earned from tourism. Similar conditions prevail in the Kashmir valley, Ladakh, Mountain valleys in Himachal Pradesh and elsewhere in the Himalayas (Partap, 2011).

Learning from Hill Agriculture success stories from Indian Himalayas (Partap, 2011)

1. Improved Livelihoods through Fruit Farming

This success story of several districts of Himachal Pradesh is illustrative of promoting fruit farming on the marginal farm lands in the hills. The fruit based production system helped alleviate the poverty of many hill farmers of Himachal. The quality of life has improved dramatically. Over 86 per cent of the population is now literate and there is almost 100 per cent literacy below 14 years. From the view point of the employment and income generation, fruit and vegetable farming are high quality options for hill farmers. The high quality of production options is also evident from their backward and forward linkages generated by them. Fruit crops farming in Himachal have helped address the following two major livelihood concerns of the hill people;

- It has promoted the productive use and management of marginal land resources.
- It helped convert non-viable subsistent farming into viable farming through harnessing of appropriate niche potentials of marginal mountain lands.

2. Forest Floor Farming of Cardamom in the

Forests of Sikkim

The subsistence dry land farming on the sloping crop lands of north Sikkim should present the poverty-cum-resource degradation scenario for the farmers. However, the ethnic mountain farming communities of Sikkim had chosen a wild high value spice-cardamom for barter and cash income source. The farmers started farming it under the forest floor like any perennial crop. For decades now cardamom, is their high value cash crop grown under the shade of natural forests as well as under alder afforestation. Almost 75 per cent farmers of north Sikkim have replaced the foodgrain agriculture on their farmlands with cardamom and alder tree plantations. Cardamom alder forestry plantation provided permanent green cover to thousands of hectares, i.e., 23 per cent of farmland. The contribution of cardamom farming to sustain livelihoods ranges between 40-88 per cent. Four key factors which make cardamom farming on marginal sloping lands useful are;

- It is ecologically adapted to farming on sloping lands and forestry system.
- Plants maintain permanent green cover on the forest floor.
- Cardamom farming ensures ecological stability to fragile mountain slopes by requiring farmers to maintain a good forest cover of nitrogen fixing alder trees.
- Cardamom is farmer domesticated, low volume-high value cash crop. It generates employment for a minimum of 80-100 days per hectare.

Globally almost 90 per cent of cardamom is produced in Sikkim and its neighbouring valleys of Nepal and Bhutan alone, therefore, their region is the niche of cardamom and enjoys a comparative advantage in marketing.

Drawing Inspiration from the Success Stories

Fruit farming on the marginal farmland in Himachal Pradesh, cardamom plantations in the forests as well as conversion of sloping farmlands into forests for planting cardamom, in all these cases the technological options reflect a better

understanding of the niche perspective—the real niches consider the use of local biodiversity as a priority. In these examples, marginal land was adopted as a given condition and agricultural development options were searched accordingly. The commonalities among these examples are the productive use of marginal farmlands and support land, soil and water management and harnessing of specific niches. The three examples convey a message that marginal lands are not constraints to productivity if appropriate technological choices are made. Marginal lands have specific niches (comparative advantages).

A proper understanding of the niches can provide clues to the potentials of marginal lands under given agro ecological environment. These production systems use perennial plantations of different types with equal advantage- be it modern varieties of apples or a farmer domesticated perennial spice cardamom. All the production systems were aimed at combining economic sustainability with ecological stability of the landscape and local environment. Cardamom farming highlights two points, one is that local biodiversity can be a good source of niche based crops for hilly marginal lands. The perspective behind the marginal land hill crops is that these are the plant resources adapted to the prevailing edaphic and climatic conditions of marginal lands. These may not be the crops coming from the experimental stations of research institutions but local plants whose economic potentials have been determined by the market or industry. The experiences described above add a new dimension to the thinking process about linking marginal land management to improving livelihoods. The trends unfolded by these case examples define a role for the biodiversity/agro biodiversity in enhancing use value of marginal land for sustainable hill agriculture development strategies. The core message of the success stories is that if the development thinking changes from “considering marginal hill lands as constraints to livelihood opportunities and poverty alleviation to that of lands of opportunities,” it brings both ecological and economic gains to the hill societies and the nation.

Rethinking needed in Hill Agriculture Development

Rethinking about Reshaping Hill Agriculture Development Strategies to add Hill Perspective

For sustaining the livelihoods of hill farmers on agriculture, it is necessary that hill agriculture is understood in the right perspective. Precisely for these reasons, hill/mountain agriculture is defined as a livelihood system which includes all land based activities on which farmers are dependent to make a living, such as cropping, horticulture, livestock, rangelands and pastures, forests etc. The hill/mountain perspective framework developed by experts at the *International Centre for Integrated Mountain Development* (Jodha, 1990) identifies these six mountain/hill specificities, viz., inaccessibility, fragility, marginality, diversity, niche and adaptation mechanisms. It is argued that each of these specificities has three dimensions, physical, biological and socio-economic which determine the suitability or unsuitability of any intervention.

The development of sustainable hill agriculture systems requires that development planning processes follow certain guiding principles, i.e., *“Approaches to hill/ mountain agriculture development will be sustainable if they are designed to mimic the land cover and other control mechanisms that occur naturally in a given mountain ecosystem”*. The guiding principles emerging from the above overarching statement are listed below.

- Hills are less suited for 'uni-dimensional land use' but more suited to multiple strategies that consider unique characteristics of smaller sites within the whole landscape; ensuring a balanced relationship between people and land resources.
- Productivity is not only based on the biophysical characteristics of hill lands, but also depends on the socio-economic parameters of the hill environment.
- Technologies may be known but the other necessary incentives, institutions or inputs may be missing.

- Identifying and harnessing location specific niches and diversity of land use opportunities.

Rethinking on Strengthening the Role of Hill Women

Hill women are the most important food producers. It is important to recognise that the knowledge and experience of generations permit women to have a great flexibility in cropping practices. For women, trees and forests are multifunctional whereas men tend to concentrate on their commercial potential for timber and other goods. Mountain women have traditionally been the invisible work force, the less acknowledged backbone of the family economy. Even though, women fulfill a great number of essential tasks, they have limited access to and control over income, credit, land, education, training and information. It is only recently that the participation of women in development programmes in hilly areas is being considered necessary. The extension approaches and tools may still be gender biased and therefore much needs to be done to encourage cooperation and partnership of women in hill development. The recent successful experiences with Mahila mandals and Self-help groups in several hilly states are a reminder of the potentials of partnership of women in the development of hilly areas.

CONCLUSION

Much of the farming development efforts made in the hills in the past were based on the poor understanding of the hill/mountain conditions, resources, environment and the socio-cultural setting of the people. The mainstream thinking on hill agriculture development was dominated by the biases against hill farming, marginal land based limitations, forest conservation as a priority, etc. Henceforth, the sustainability prospects for mountain agriculture have remained bleak unless the main stream perceptions about the problems are not changed. The hill perspective based development strategies are essential for formulating farmer responsive plans, giving due consideration to the nature of marginality, fragility, diversity and niches of each area. It will not only help ameliorate

the impact of the marginalisation of hill communities but also help in achieving social equity by building on the comparative advantages of key land resources. While development thinking in the hills view marginal sloping lands as a constraint, the hill farmers' marginal lands are a given condition and diversified livelihood options have been evolved to capture the niches and comparative advantages of available natural resources, namely, mixed farming, nomadism, etc. The significant trend witnessed by the Himalayan states in recent times is the change in demographic patterns (growing younger population and increased male out migration in search of cash income opportunities in the cities. This has led to a shortage of men in the labour force and increasing farming related workload for women.

Breakdown of isolation and opening up of hills to the wider market economy have both positive and negative impacts on the livelihoods of small hill farmers. However, because of the strong highland-lowland linkages, these areas cannot be looked at in isolation. An important challenge is to identify the different linkages and develop the comparative advantages that agriculture in these areas offers.

Even though hill production systems are becoming increasingly unsustainable both economically and ecologically, yet the policy makers have not been sufficiently sensitive to the specific upland conditions and constraints faced by the hill farmers. In this context, hill peoples' resource rights are being fragmented and undermined through administrative policies, national environmental legislations and trade agreements. Unclear land rights and inappropriate land use policies have often led to land use patterns that have endangered biodiversity and damaged environment. For people living in poverty; the environment, the commons and its natural resources involve beliefs, faith, wealth and knowledge systems which are close to their lives.

The production niches and biodiversity have the potential to convert marginal uplands into productive production systems. There are areas in

the hills that in fact have significant potentials for research-driven productivity increases, and that the returns on investment in these areas may even surpass the favoured areas. The increased attention of hill agriculture research to address water – land – poverty linkages, which goes beyond soil conservation projects, is necessary. Water insecurity appears to be a main poverty feature in the uplands where sloping lands dominate. It will be important to have a better understanding of the supply and demand of water at a local level how to tide over water scarcity through managing excess availability. Water excess is as much a cause factor of degradation, as its scarcity.

The diversification of hill agriculture can provide better choices and quality options for sustaining the livelihoods of hill farmers. But what is necessary in this process is to develop a clear understanding of the ecologically and economically sustainable farming options. There have been examples of the successful infusion of environmental and development goals, as shown by the success stories. Changes are needed in law where it denies access to and the use of sloping land resources that are basic to the livelihoods of local people. Shifting cultivators and agro-pastoral communities need that attention more than anyone else. For developing the right approaches to hill areas development, there is also much to learn from the experiences of other nations. To benefit from the experiences of other countries, initiatives focusing on inter country transfer of knowledge and information about successful technological and institutional innovations is needed.

For the hill farmers of India, there are more commonalities with hill farmers of China, Korea, Taiwan and Japan than with the west. India needs to look *East* and not *West* for a better understanding of agriculture issues and for the right strategies to harness the opportunities. Keeping in view the unique and special agro-ecological and socio-economic setting and recognising that the Green Revolution did not succeed in climbing the Himalayan heights. The *National Policy on Farmers* outlined by the National Commission on Farmers

(NCOF, 2006) has strongly recommended that the *National Policy on Agriculture* should have a special parallel window on hill agriculture so that it can commensurate strategies for hill agriculture research, technology and marketing could be established. It recommended strengthening the interdependency and synergy between all the sectors of agriculture, viz., crops, horticulture, livestock, fisheries, forestry and the associated

natural resources. Investments will also be required in research technology and development to create a basket of choices of suitable production systems capturing every niche. Further, an enabling policy environment is essential in order to recognise and encourage people based initiatives in different areas of the Himalayan states.

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