

# 3 The Policy and Institutional Environment



Elisabeth Kerkhoff

Based on the conceptual framework developed in the previous chapter, this chapter examines selected policy and institutional issues in relation to agricultural development in mountain areas.

## **Policy biases against mountain areas**

Witnessing the success of green revolution technologies in the plains, most countries in the HKH region have pursued a policy of promoting improved agricultural technologies to increase gross production, often measured in terms of cereal production and productivity. But these technologies are mostly suited to lowland conditions where agriculture is mainly homogeneous and where accessibility factors make them relatively easier to disseminate. Countries like India, China, Pakistan, and Bangladesh, where hills and mountains constitute a

considerable area, have pursued single-pronged green revolution technologies (GRTs). Even predominantly mountainous countries like Nepal have pursued similar policies. Nepal's Twenty Year Agricultural Perspective Plan (1995–2015) is dominated by GRTs such as the expansion of irrigation, application of inorganic fertilisers, improved technology, development of agricultural roads, and electricity, targeted at the Terai and hill valley regions where terrain and soil conditions are more favourable. The specificities of hills and mountains such as diversity, fragility, remoteness, inaccessibility, and niches, have not yet been sufficiently recognised and reflected in planning and implementing of national agricultural research and extension programmes and policies (*for details see* Jodha 1992, Vol.I:43–96; Jodha 1997:314).

Broadly, national policies, agricultural strategies, and institutional support systems in all countries of the HKH region are largely biased towards the promotion of lowland agriculture for the cultivation of field crops dominated by cereals such as paddy wheat and other mono-crops. Although the biophysical and agroecological conditions of mountain areas are significantly different from those found in lowland areas, most HKH countries employ lowland agricultural strategies and policies such as GRTs in the hope that mountain farmers will receive trickle-down benefits (Rhoades 1997). Unfortunately, past policies and strategies to stimulate agricultural development in mountain areas matched its biophysical conditions poorly and failed to address the typical socioeconomic conditions of mountain farmers who depend not only on diverse types of crops, but also on livestock, trees, and other forest products (Sharma 1997, Ya 1998, ICIMOD 1999). As a result, and despite good intentions, past agricultural policies and programmes have failed to bring about the desired impacts on agriculture and rural development in the HKH region.

### **Poor understanding of mountain livelihood problems**

Mountain farmers are faced with a fragile and unstable environment. Their livelihoods therefore depend on the adoption of complex survival strategies involving a variety of enterprises (Yadav 1992, Demaine 1998). Wide variations in micro-climatic conditions and small land parcels that often fall on steep slopes provide limited scope for mechanisation and agricultural specialisation. Extreme poverty and relatively low natural capital have furthermore limited the ability of farmers to absorb risks of crop failure. Mountain farmers use forests and natural resources to gather a host of materials for food, fuel, medicines, construction materials, and other equipment. Livestock provides both draught power, meat, and cash income. In order to meet household cash requirements mountain farmers have to resort to non-farm employment, sometimes in distant cities and countries (Yadav 1992:143–61).

Mountain agriculture is, therefore, much more complex, diverse, and risk-prone than lowland agriculture. Sectoral policies and programmes designed to serve the lowlands, particularly in relation to field crops, have failed to address the diverse needs of mountain farmers that arise from the complex interdependencies between mountain agriculture and mountain livelihood systems (Fig. 1).

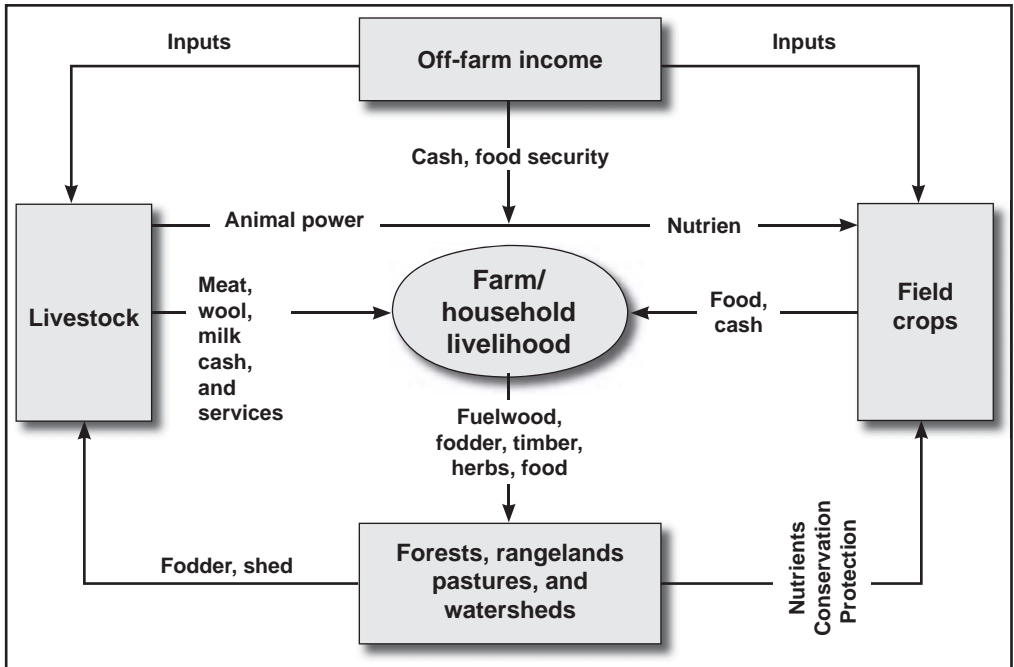


Figure 1. Interdependencies and inter-linkages of mountain agriculture and livelihood systems



Ujoi Sherchan

## Socioeconomic conditions of mountain farmers

The incidence and severity of poverty in mountain areas is relatively high compared to poverty in the adjacent plains. In Nepal, for instance, the severity of mountain poverty is more than double that of the Terai region (Table 2). Incidence of poverty is also higher in most of the mountain states in India (Planning Commission,

**Table 2. Incidence and severity of poverty in Nepal**

Region	Poverty Incidence (%)	Poverty Gap (Depth/Intensity of Poverty) (%)	Severity of Poverty (%)
Mountains	0.56	18.5	8.2
Hills	0.41	13.6	6.1
Terai	0.42	9.9	3.4
Nepal	0.42	12.1	2.8

Source: National Planning Commission 2003

Government of India 2006). The state of undernourishment of the population, one of poverty's finer manifestations, is much higher in several Indian Himalayan states such as Assam, Meghalaya, Sikkim, Arunachal Pradesh, Mizoram, and Tripura than the national average (Table 3). Poverty combined with a poor resource base and small farm sizes constrain investment by mountain farmers in agriculture and favour the continuation of traditional low-input agricultural practices that bind them to a low level of equilibrium and the poverty trap (Khan and Naqvi 2000).

**Table 3. Percentage of undernourished population in the Indian Himalayas compared to the national average**

States	Undernourished population (%)	Percentage of undernourished population compared to the national average (national average = 100)
Jammu and Kashmir	10	29
Himachal Pradesh	24	69
Uttarpradesh Hills	21	60
Sikkim	57	163
Assam	47	134
Arunachal Pradesh	52	149
Meghalaya	51	146
Mizoram	41	117
Nagaland	28	80
Manipur	30	86
Tripura	50	143
India (national average)	35	100

Source: Chand 2000

Mountain people are not only poorer, face much more resource constraints, and are generally undernourished, they are also often poorly educated because of poor access to schools and other public services. The literacy rate in Bandarban Hill district in the Chittagong Hill Tracts, for instance, is just about half that of the nearby plains district of Chittagong (BBS 2003).

Because of persistent poverty and undernourishment the poor are unable to take advantage of agricultural development programmes like growing cash crops, undertaking new ventures, and adopting new technologies (Lipton 2001).

### **Narrow discipline service organisations**

There is a dearth of institutional and policy mechanisms to bring holistic and integrated expertise to mountain agriculture. Most of the service institutions providing research, extension, and marketing services in the Himalayan countries are governed by narrow disciplinary mandates such as forestry, livestock, fisheries, crops, non-crops, cereals, and non-cereals, amongst others, in line with the trend towards agricultural specialisation. Because of this, agencies operating under related mandates usually fall under different ministries or departments, and there is little coordination and cooperation among them. As a result, these service organisations receive different education, training, and orientation and have little communication and interaction with other agencies (Lundgren 1987, Arya 2000). Although organisations specialising in particular disciplines or fields of study fit well within specialised agriculture, they fail to address the needs of mountain farmers who require an integrated approach.

### **Poor orientation of public organisations to the mountain environment**

Many public organisations that provide services for agriculture and forest development in mountain areas have tended to neglect mountain specificities and are poorly oriented to address the unique problems of mountain regions. Reasonably successful in generating technologies for lowland agriculture, these institutions are less successful generating knowledge and technologies that suit farming conditions in mountain areas. Confined by their narrow disciplines or orientation and long affiliation with lowland agriculture, agricultural scientists in the region have paid less attention to generating mountain-specific knowledge and technologies. Most agricultural research efforts are focused primarily on crops suited to lowlands. Mountain farmers need a more holistic and integrated knowledge to grow varieties of crops, trees, and livestock in fragile mountain environments. The primary thrusts of the nine major agricultural research institutes in Bangladesh, for example, are the sectoral aspects which have limited utility for farmers in the Chittagong Hill Tracts (Table 4).

Extension services provided in mountain areas also have little relevance as they are designed for the lowlands. In Bangladesh, for example, extension services are designed centrally according to the needs of lowland agriculture which require the increased adoption of irrigation and agro-chemicals (ADB 2001, Arya 2000, Rasul 2003). Lowland oriented extension services are being provided to all parts of the country, including the CHT where biophysical conditions are not suitable for lowland agriculture. As a result, extension officials, most of whom are Bengali from the plains, have little knowledge about the hilly environment and hill agriculture. A similar situation exists in Pakistan (Dr M Afzal, Director General, National Agriculture Research Centre, Pakistan, personal communication, 10 August 2006).



**Table 4. Research thrusts of the major agricultural research institutes in Bangladesh**

Research institution	Ministerial affiliation	Primary research thrusts
Bangladesh Agricultural Research Institute	Agriculture	Crop research with the exception of rice, tea, sugarcane, and jute crops
Bangladesh Rice Research Institute	Agriculture	Rice research, mainly high yielding varieties
Bangladesh Jute Research Institute	Agriculture	Jute
Bangladesh Sugarcane Research Institute	Agriculture	Sugarcane breeding
Bangladesh Tea Research Institute	Commerce	Tea research
Bangladesh Institute of Nuclear Agriculture	Science and Technology	Application of nuclear science to agriculture
Bangladesh Fisheries Research Institute	Fisheries	Fish culture
Bangladesh Livestock Research Institute	Livestock	Cattle and poultry research
Soil Research Development Institute	Agriculture	Soil and fertility research and monitoring

## Unclear property rights

Many ethnic minorities live in the HKH region and use traditional agricultural practices like shifting cultivation in forest frontiers (Kerkhoff and Sharma 2006:6). The British colonial government nationalised most of the forest land in colonial India (which consisted of present-day India, Pakistan, and Bangladesh) and established reserve forests on vast areas in the mid-19<sup>th</sup> century. Although local people have been using these lands for centuries their access and usufruct rights are not yet recognised. As a result a profound feeling of insecurity and alienation has been developing among shifting cultivators and forest dwellers, which constrains them from adopting improved agricultural practices that require considerable investment in time and labour. Unclear property rights and tenurial insecurity not only constrain agricultural investment, they also deprive farmers of access to formal credit, inputs, and other institutional services required to improve agricultural practices (Soto 2000). Most importantly, they do not provide incentives to shifting cultivators or forest dwellers to be true stewards of the land and its resources and provide disincentives instead. Moreover, when property rights are absent the negative stock effects of agricultural practices such as soil erosion, land degradation, watershed deterioration, among others, are excluded from decision-making in crop choices and land use and management. This undermines long-term security of returns on the land and encourages what economist call, 'higher discount rates' and a short-term perspective.

## Market failure to value public goods and services

Since time immemorial, mountain farmers have been the custodians of critical watersheds in nearly all the rivers in South Asia. Mountain watersheds contain vast amounts of forest resources and a unique biodiversity and are the places of origin of a variety of important food, tree crops, and medicinal and aromatic plants. Many



Elisabeth Kerkhoff

services provided by mountain farmers in the form of soil conservation, watershed protection, biodiversity conservation, and carbon sequestration through good agricultural practices (such as agroforestry, zero tillage farming and hedgerow and tree farming) do not have any market price or value. Although society at large benefits from these services – and some of the benefits transcend the HKH region – farmers receive even less than the worth of their wage labour as the market fails to recognise the value of the environmental services that they and their environments provide. Because farmers are not compensated for their public goods and services, there is little incentive for them to adopt improved agricultural practices. As a result, farmers do not consider environmental externalities while making decision about land use and which crops to grow on fragile lands like hill slopes (Rasul and Thapa 2007). Some farming systems, such as agroforestry, protect the soil and provide environmental service while others like the cultivation of potatoes, ginger, and maize can lead to soil erosion, with enormous costs to the environment. Market prices do not reflect these environmental benefits and costs and, hence, farmers tend to discount them when choosing crops. Market failures arising from policy failures become more severe in mountain areas as these areas become better connected to markets and more commercialised. This is the condition in many parts of the HKH region where potatoes, ginger, and other cash crops are grown on marginal soil for high market prices regardless of environmental costs.

## **Poor marketing facilities**

The increasing demand for cash income from farming has made marketing facilities fundamental to rural development. Mountain areas have limited markets for their produce owing to their sparse populations, consumption, difficult terrain, and high transportation costs to deliver produce to densely populated distant market centres, often located in the lowlands. These factors put farmers in mountain areas at a considerable disadvantage when competing for the domestic and export markets. As a result farmers in mountain areas are in a considerably disadvantaged position when competing in the domestic export markets, hence, they receive less benefit from the same opportunities than farmers in more accessible areas. Mountain areas are also more environmentally fragile and susceptible to degradation arising from land use patterns driven by markets that do not take adequate account of environmental costs. For example, because of complicated transit rules, farmers in the Chittagong Hill Tracts in Bangladesh receive less than one-third of the price of timber grown on their farmlands (Rasul 2005). Nepali farmers and collectors receive very low prices for non-timber forest products (NTFPs) because of inefficient marketing systems (Pandit and Thapa 2003). In Myanmar, marketing of major agricultural products is government-controlled, and farmers receive very low prices for surplus products (Okamoto 2004).

## **Output pricing and input delivery**

In many countries in the HKH region, governments interfere with market prices, and formal and informal rules and regulations, taxes, fees, levies, and administrative procedures distort both product and input markets. As a result, the market price deviates from its socially optimal price. Prices for timber, for example, are largely undervalued compared to their true social cost. This is because producers are unlikely to include the environmental benefits of trees for soil conservation or for modulation of local climate when valuating the trees that they cut. Inappropriate prices for inputs and outputs can encourage farmers to degrade resources by making unsustainable practices more profitable. This has happened in many parts of the HKH region where potato, ginger, and other cash crops requiring continuous tillage and extensive soil manipulation are grown (Rasul 2003, Semwal et al. 2004).

## **Inadequate and inefficient credit systems**

Farmers need to make a significant initial investment to be able to practice sustainable agriculture, but returns accrue only after sometime. For this initial investment and to support expenditure during the gestation period farmers need credit on affordable and accessible terms. Although the per-unit investment cost is higher in mountain areas (Chand 2000), in most Himalayan countries formal credit systems are either inaccessible or unaffordable, which forces farmers to depend on informal credit sources available on high interest rates. In Nepal, for example, five of the seven major micro-credit programmes had virtually no coverage in mountain districts, and limited coverage in hill districts (Dhungana and Thapa 1999). Similar conditions exist in the Chittagong Hill Tracts of Bangladesh and other mountain regions. In all hill states in India the flow of institutional credit per hectare of



cultivated area is much lower than the national average (Table 5). Per hectare institutional credit in the Indian Himalayan states varies widely from 3-63% of the national average, with the lowest per hectare credit registered in Manipur, and the highest rate registered in Himachal Pradesh. Other states have around 10% of the national average. Per hectare agricultural credit in Balochistan and the North-West Frontier Province of Pakistan (NWFP) is also much lower than in Punjab and Sind (Chaudhary 1989:196).

State	Per Hectare Credit (IRs)			
	Working Capital	Term Loan	Total Institutional Credit	Percentage of National Average*
Jammu and Kashmir	183	76	190	12
Himachal Pradesh	585	443	1,028	63
Sikkim	85	61	146	9
Assam	12	58	70	4
Arunachal Pradesh	112	33	145	9
Meghalaya	94	49	143	9
Mizoram	134	17	151	9
Nagaland	103	2	105	6
Manipur	4	46	49	3
Tripura	384	81	404	25
India (national average)*	1,243	401	1,644	

Source: Ministry of Agriculture, Government of India, 1999 in Chand 2000:281

Higher borrowing costs not only affect the ability of farmers to invest in agriculture, it also makes the investment financially less attractive. As a result, farmers continue to practice traditional agricultural practices, such as slash and burn, that do not require initial investment. In addition, lack of tenure provides no incentives to make long-term investments in shifting cultivation or forest land.

### **Inappropriate rules and regulations**

Rules and regulations are imposed on mountain farmers without considering their impact on the livelihoods of mountain communities. For example, many Himalayan country governments introduced strict rules and regulations in relation to harvesting (e.g., ban on commercial logging in south-west China, the ban on green felling in Uttaranchal, Sikkim, among others), and on the transport and marketing of forestry and agroforestry products, timber, and NTFPs, ostensibly to control pilferage. These complicated rules have failed to stop pilfering of forest products, but they have penalised mountain farmers who grow trees, practice agroforestry, collect and sell NTFPs, practice horticulture, and other location suitable agricultural activities (Rasul 2005; Melick et al. 2007). A few policy issues that affect the agriculture and livelihoods of mountain people are presented in Table 6.

**Table 6. Examples of key policy issues and their impact on agriculture and livelihoods**

<b>Policy Issue</b>	<b>Impact</b>
Complicated transit rules for transporting timber grown on private land in CHT (Bangladesh)	Encourages rent-seeking behaviour and decreases farmers' profit margins from agroforestry, tree farming, and other location suitable agricultural practices including NTFPs
Government taking over private land left uncultivated for 12 years to grow trees (Bhutan)	Encourages farmers to cut down trees and grow field crops
Privatisation of rangelands (China)	Increases social conflict, decreases scope for livestock mobility, which is an important strategy to cope with seasonal variability, and forage and fodder shortages
In most of the states only degraded forest is handed over to the Forest Protection Committee under Joint Forest Management (India)*	If Joint Forest Management is allowed only on degraded lands, local communities have an incentive to degrade existing forests
State control over the export of agricultural products (Myanmar)	Discourages the export of agricultural products, thus constraining agricultural development in line with market demand
Tax on income from community forestry (Nepal)	Discourages the transformation of community forestry from a subsistence enterprise to a commercial enterprise
Subsidies on ground water irrigation (Pakistan)	Encourages the overexploitation of ground water resulting in the depletion of water tables

\*Although the Government waived this restriction in a 2000 circular, the circular is yet to be implemented.