

# **Chapter 7**

## **Growth, Poverty Alleviation and Sustainable Resource Management in Mountain Areas of Pakistan**

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### **7.1 Introduction**

Poverty is a state of economic, social, and physiological deprivation occurring among people or countries lacking sufficient ownership, control, or access to resources to maintain acceptable living standards (North-South Institute 1985). Mass poverty and inequality of income distribution are the social issues disturbing most of the Third World. Pakistan, like other developing countries, has an unacceptably high level of poverty despite reasonably high economic growth, a little more than five per cent (UNDP 1996) (Annex 1). According to Hussain (1994) as much as 25% of the population are still deprived of basic services such as drinking water, sewerage facilities, health, and education.

The country in the past five decades has witnessed poverty, i.e., stagnant in the fifties, increasing poverty and growth in the sixties, stagflation (inflation without growth) and declining poverty in the seventies, as indicated by improved availability of essential commodities (Annex 2) increasing growth and declining poverty in the eighties, and increasing poverty and falling growth in the nineties. In the development paradigm, it is commonly believed that reasonable economic growth triggers off new opportunities for the poor and helps reduce poverty in the long run. Some have,

however, criticised growth led poverty reduction approaches and argued that we need to reverse this thinking. In fact, development efforts should focus on poverty reduction and reduced poverty will automatically be translated into higher economic growth.

Under various regimes in the past, efforts have been made to boost economic activity in the country without addressing the needs and concerns of the poor. However, in the 70s, a more realistic approach to rural development was followed in the Integrated Rural Development Programme (IRDP). In the nineties, the crisis is said to have been because of the twin menace of fiscal and current account deficits. To contain inflation, these deficits must be brought down. The required structural change and policy reform focuses on public expenditure, taxes, utility pricing, public sector borrowing, trade regime, and forms of governance related especially to these areas.

The current state of population growth and increasing poverty has put an additional stress on Pakistan's natural resources (Annex 3). The resulting resource degradation is another key factor responsible for low agricultural productivity. Lower productivity coupled with an inadequate capacity to correct resource degradation exacerbates the poverty crisis in rural societies.

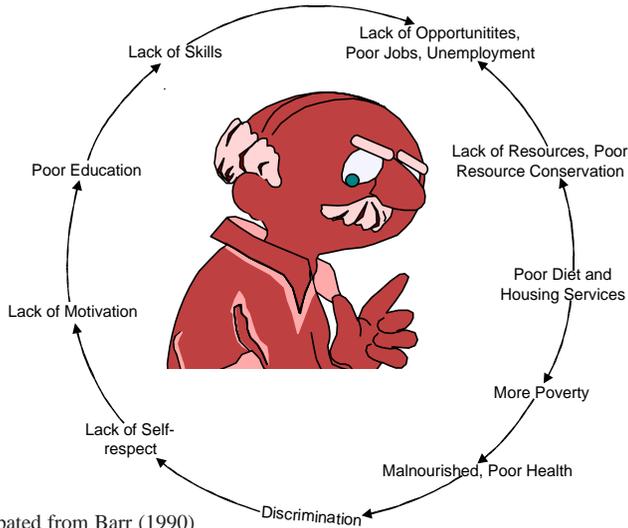
This paper presents an overview of Pakistan's state of poverty with special reference to mountain areas, it also discusses the interventions of the public and private sector and recommends strategies for sustainable use of natural resources.

## **7.2 Socioeconomic Conditions of Mountain Areas**

Pakistan's 66% population resides in rural areas (UNDP 1996). Not surprisingly, the financial condition of the large majority of the rural poor is linked with the performance of the agricultural sector. Research and development policies in the past favoured large farmers and widened this gap between rich and poor. Due to structural adjustment, the cost of agricultural inputs has increased many fold, leaving almost no profits for small farmers

The issue of poverty in the mountain areas of Pakistan is relatively serious. These areas are among the least developed in the country both on account of economic opportunities as well as lack of access to social sector services. Extreme weather conditions, remote geographical location, scattered populations across many small and distinct villages, rudimentary physical and social infrastructure, underdeveloped markets, and inadequate investments in financial and human capital have been among the key defining characteristics of the poverty problem in Northern Areas. The major source of livelihood of most households is agriculture in an area where there is very low precipitation, insufficient cultivable land, and low land productivity, especially in single-cropping agro-ecological zones located at high altitudes. Off-farm sources of income have traditionally been limited and entrepreneurship scarce. All these factors entrap the poor of these areas in a vicious circle of poverty, as shown in Figure 7.1.

**Figure 7.1: Vicious circle of poverty**



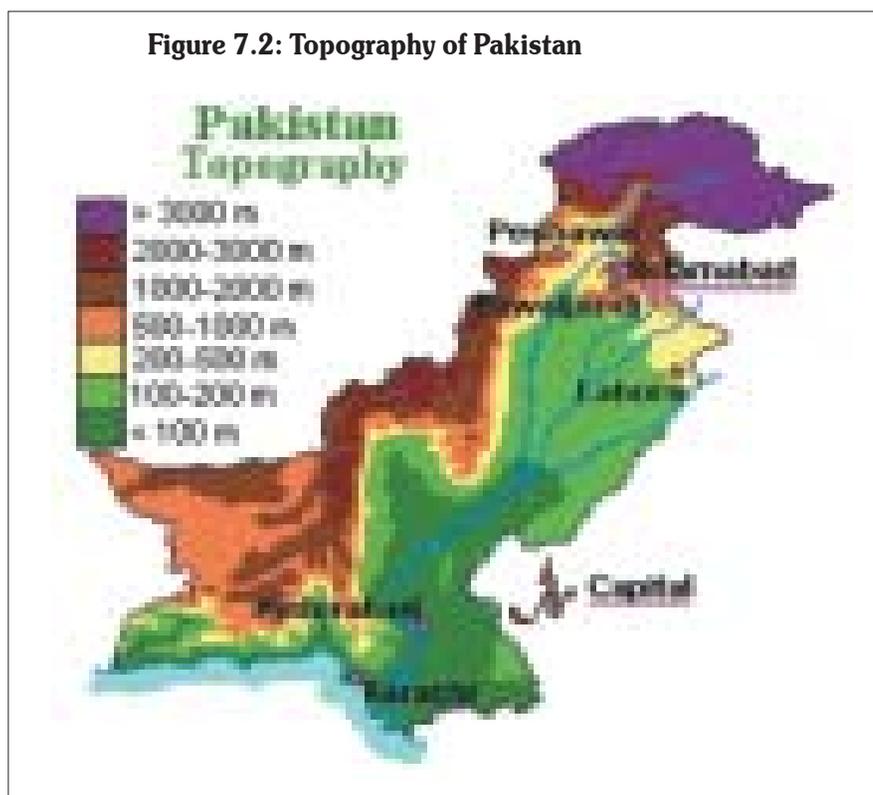
The situation is worse in mountain areas where communities largely depend on natural resources to earn their living. Therefore, poverty in these areas is causing depletion in natural resources. In fact poverty and environmental degradation have an interactive relationship. Poverty pressure on households near forests and rangelands compels them to cut trees and overgraze fragile areas. According to the National Conservation Strategy (NCS 1994), there are only three million hectares of land under some form of tree cover. This constitutes 3.5% of the total land area in the country and is extremely inadequate. (Pakistan's profile of natural resources and food security is given in Table 7.1.) As a consequence, there is accelerated surface erosion which is not only leading to depleted soils, but also exacerbating poverty in these areas. It is argued that any economic activity that affects the sustainability of natural resources will make the poverty issue more complicated.

Mountainous areas in Pakistan are situated in the north-west of the country and form a formidable barrier (Figure 7.2). The ecology of these areas varies and its capabilities can be limited severely by natural resources. This is reflected in the culture and social norms of the area. The harmonious living of the Northern Areas (NAs) on one extreme is countered by the tribal conflicts in the southwest. The tribal system follows its own codes of conduct and justice. The tribes are very tightly organised. The tribal leadership is still intact and codes are rigidly implemented. The social structure of some tribes has been modified in some cases by their proximity to settled areas. Efforts made previously by successive governments have been unsuccessful for the reason that physical power has been used as an intervention. It seems that this can be achieved through simple economic interventions. However, these have not been

Table 7.1: Profile of food security and natural resources in Pakistan

Food production per capita	1993 1980=100	118
Food imports per capita	1993 1980=100	114
Cereal imports per capita	1994 (1,000 tons) 1980=100	201
Food aid in cereals per capita	1994 (1,000) 1980=100	19
Food aid 1992 (\$ million)		190
Land area (1,000 ha)	1993	79,610
Irrigated land (as % of arable land area)	1994	80
Deforestation (1,000 ha per year)	1980-9	9
Annual rate of deforestation (%)	1981-90	2.9
Reforestation (1,000 ha per year)	1980-9	7
Production of fuelwood and charcoal (1,000m <sup>3</sup> per year)	- 1980	16,683
	- 1993	25,021
Internal renewable water resources per capita (1,000m <sup>3</sup> per year)	1995	3.3
Annual fresh water withdrawals 1980-9	- a % of water resources	33
	- per capita (m <sup>3</sup> )	2,053

Source: IIED 1998



followed in Pakistan. This may have come about by accident and not as a matter of conscious efforts by the government. The way of life, the compulsions in these areas are different from those in the plains.

Cultural aspects provide security and subsistence under very harsh conditions. It is easy to condemn a given social system if it does not coincide with prevailing development paradigms. However, where living conditions are harsh, production systems are nomadic or non-existent, and unique socioeconomic systems may evolve. That is what has happened in the mountain areas. So far, modern economic opportunities have not entered the area. Conflicts between the government and the tribes are a common occurrence, as a result the areas are lagging behind. The literacy rate is very low, less than one per cent for women (UNDP 1998). Health facilities are unheard of and roads and construction of roads are prohibited. Electricity infrastructure is frequently vandalised. Given this scenario, development is decades behind. The will and the right of the Federal Government are virtually non-existent. A more participatory approach is required to render development programmes more acceptable, both socially and economically.

Agriculture is the backbone of the economy of mountain areas in Pakistan. Maize, fruit, vegetables, and wheat are the main crops, and rearing livestock is also a common occupation. Crop yields have increased for all the main crops because of increased inputs of improved seed, irrigation, and agricultural chemicals. However, the prime agricultural lands are being steadily lost to unproductive uses such as human settlements and roads. This trend is leading to a food deficit in these areas.

In the agricultural system, orchard farming dominates all others Apples and peaches are the main cash crop in most mountain areas. These crops have provided subsistence for people of diverse occupations for the last twenty-five to thirty years Farmers, field workers, shopkeepers, transporters, and many others benefit from orchard production, directly or indirectly. Peaches also require a substantial amount of agro-chemicals for healthy fruit production. Other fruit orchards grow persimmons, cherries, pears, and plums. Vegetables are also produced on a large scale. The most important are onions, peppers, potatoes, and cauliflower. Cereal crops and pulses of many types are also grown in this area but the only chemicals used to increase yields are fertilisers Pesticides are used sporadically on cereal crops and pulses.

Poverty in either rural or urban environments is a multi-dimensional problem in the NWFP; but economic poverty is its key dimension. An inter-provincial comparison of poverty in mountain areas is shown in Table 7.2. It indicates that in 1991 the NWFP had the highest concentration of poor people relative to its share in the national population and that the ratio of those living in poverty was 50% higher in rural areas than in urban areas. Surprisingly, poverty indicators for Balochistan have improved markedly over time, from 25% in 1985 to 7.7% in 1991.

Table 7.2: Distribution of the poor in mountainous provinces

	People Living in or below the Poverty Line			1991 Index of Concentration (% poor in the region to all poor ÷% population in the region to total population)
	1985 %	1988 %	1991 %	
<b>Pakistan</b>				
Average	18.3	16.6	17.2	100
Urban	11.1	08.7	09.8	57
Rural	21.1	20.6	20.6	119
<b>NWFP</b>				
Total	09.6	15.5	20.0	117
Urban	07.5	12.4	14.3	83
Rural	09.0	16.0	21.4	124
<b>Balochistan</b>				
Total	27.5	09.3	07.1	41
Urban	17.0	04.4	04.5	26
Rural	28.5	10.0	07.7	45

Source: SPCS 1996

### 7.3 Poverty Alleviation Efforts

#### Public sector efforts

In the past, there have been efforts to alleviate poverty in the country. For instance, the government effort in the post 1987-88 period consisted of a variety of programmes designed to alleviate poverty. The Social Action Programme (SAP) followed a top-down development approach in which provincial governments identified the projects for rural water supply, basic health, primary education, and family planning. The SAP, introduced in 1992/93, represents the most important initiative so far in Pakistan to develop a programmatic, medium-term approach to public expenditure at sectoral level. The SAP intended to improve Pakistan's poor social indicators which lag significantly behind the averages for low-income countries. Expansion of access to and improvements in the quality and management of basic social services have been put at the top of the government's development agenda, and spending priorities have begun to shift accordingly.

The SAP is based on five sets of programme agreements developed by the federal and provincial governments in consultation with stakeholders and with the support of donors. These include 1) sector strategies; 2) policy reforms and progress indicators for each sector; 3) a five-year rolling public plan; 4) planned expenditure and financing and procurement plans for each subprogramme; and 5) Annual Operational Plans for each subprogramme. The SAP can focus on cross-cutting problems that adversely affect the planning and implementation of social service programmes (e.g. governance), and it includes a monitoring and evaluation component. The targets of SAP during the Eighth Five-Year Plan (1993-98) and achievements based on partial assessment of the programme so far are provided in Table 7.3.

Table 7.3: Social action programme, targets and achievements

Sector	Targets under 8 <sup>th</sup> Plan (1993-98)	Achievements (March 1995)
<b>Primary Education</b>		
Participation rate (per cent)		
Total	86.2	55
Male	94.8	71.1
Female	77.3	36.5
Enrolment (million)		
Total	2.559	12.946
Male	1.435	8.722
Female	1.124	4.224
<b>Basic Health Services (million)</b>		
Immunisation	3.15	0.814
ORS packets	9.5	1.0
Training of Trained Birth Attendants	0.0087	0.0013
Training of Community Health Workers	0.009	--
Improvement of Basic Health Units	0.0007	0.0003
Improvements of Rural Health Units	0.00007	0.00003
<b>Rural Water Supply &amp; Sanitation (million people)</b>		
Water supply	13.26 (88%)	9.1 (77%)
Sanitation	4.68 (31.2%)	0.97 (7%)

Source: SPCS 1996

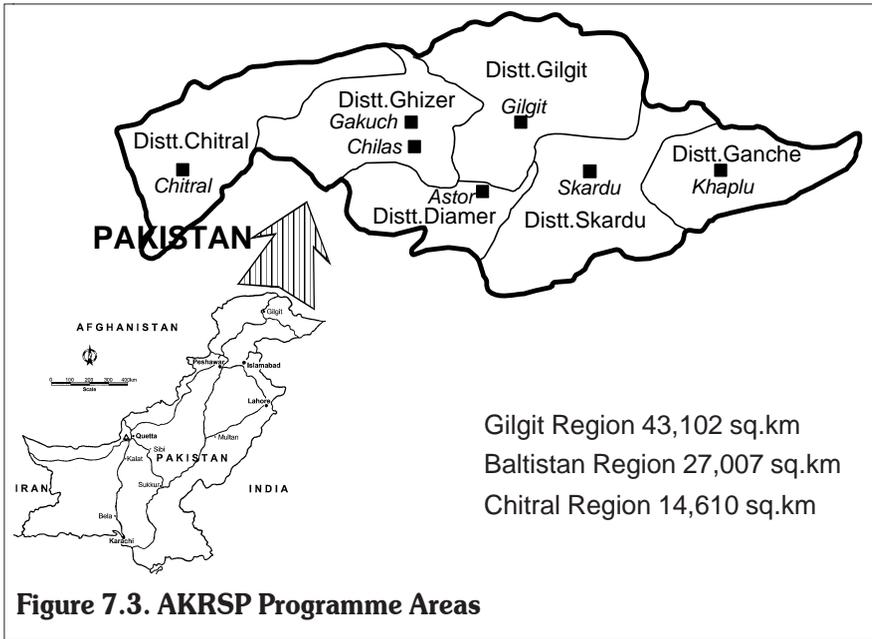
The landmarks of the SAP in the mountain province of the NWFP include need-based site selection criteria for the establishment of new facilities; constitution of village education committees and preparation of a master list of school sites for 1995-96 and 1996-97; the approval of a unified policy for the rural water supply and sanitation sector; and a major initiative to restructure the health sector through an integrated health policy statement. The Government of the NWFP is also increasingly engaged in a dialogue with non-government organisations (NGOs) to involve them in development efforts.

## Private sector efforts

### *Agha Khan Rural Support Programme*

The Agha Khan Rural Support Programme (AKRSP) is an NGO established by the Agha Khan Foundation to help improve the quality of life of people in the Northern Areas and Chitral. The programme areas are shown in Figure 7.3.

AKRSP was established in 1982 with a mandate to focus on economic and institutional development of local communities in collaboration with government departments, elected bodies, and national and international development agencies. AKRSP has, over the years, acted as a catalyst for integrated rural development, organising local human, physical, and financial resources in order to enable communities to bring



about their own development in an equitable and sustainable manner. Major programme components include social organisation, women’s development, natural resource management, development of productive physical infrastructure, human resource development, enterprise promotion, and credit and savings’ services.

Poverty remains the most formidable challenge faced by the people of the Northern Areas and Chitral today. AKRSP started work in these conditions in 1982 to directly address the challenge of poverty in northern Pakistan. The programme aims to build the capacities of the local people to enable them to manage and sustain their own development. The AKRSP model, in this respect, relies on the efficacy of community-based grass roots’ development to bring about lasting improvements in the quality of life of the rural poor. Following this model the programme has sought to involve communities in all aspects of development activities. AKRSP has succeeded in supporting the creation of broad-based community organisations for both men and women which provide collective platforms to the people from which they introduce and implement programmes to promote economic and social development activities in their villages and valleys.

This approach to poverty alleviation is based on bridging the organisational, financial, physical, and human resource gaps as identified by the villagers themselves as impeding development activity in their areas. Examples include irrigation channels to provide water for land cultivation, link roads to connect villages to towns, and micro-hydels for electricity generation. AKRSP’s other approach to poverty

alleviation empowers individual households to make the best use of resources made available to them through their organisation. This is primarily done through building financial capacities, raising awareness levels, and the delivery of required services. The programme, through interventions at community as well as individual household levels, has made substantial gains in the struggle against poverty.

With some variations, the programme has continued to expand and grow on most fronts. A summary of the main programme indicators, cumulative and additions in 1998, is given in Table 7.4.

**Table 7.4: Summary data, cumulative and additions in 1998, on AKRSP's performance**

Programme Area		
	Cum.	Add.
Area (sq.km) Rural Households	74,200 116,3355	
Population	1,134,738	
<b>1. Social Organisation</b>		
Total No. of Organisations	3,557	181
Village Organisations	2,299	82
Women's Organisations	1,258	111
Total No. of Members	133,856	7,417
Village Organisations	92,287	3,654
Women's Organisations	41,569	4,329
Total Savings (PRs* Mil)	414.45	46.10
Village Organisations	318.11	28.23
Women Organisations	96.34	17.87
% of Households Covered by VOs	84	
Cluster Orgs. Developed	149	21
<b>2. Mountain Infrastructure &amp; Eng. Services</b>		
PPIs Initiated	1,963	149
Beneficiary Households	123,667	15,904
Cost of Initiated PPIs (PRs Mil)	541.23	99.20
Disbursement (PRs Mil)	443.21	70.78
PPIs Completed	1,680	149
<b>3. Agriculture</b>		
Cereal Seeds Supplied (kg)	315,700	25,840
Fodder Seeds Supplied (kg)	146,193	14,423
Vegetable Seeds Supplied (kg)	79,296	897
Potato Seeds Supplied (kg)	200,990	39,780
Total Fruit Trees Supplied (mil)	1.05	0.12
Fruit Trees Planted by VOs mil)	2.07	1.04
V/WO Agriculture Specialists	3,459	289

Table 4: Cont....

<b>4. Livestock</b>		
Bulls Supplied	123	40
Cross-bred Sheep	4,836	41
Rams Supplied	571	103
Brooding Centres Established	239	46
Poultry Chicks Supplied to BCs	572,560	115,103
V/WO Livestock Specialists	4,722	486
<b>5. Enterprise Development</b>		
<i>Cooperative Marketing</i>		
Participating VOs	2,500	-
Gross Sales (PRs mil)	191	-
Marketing Expenses (PRs mil)	20	-
Net Sales (PRs mil)	171	-
Beneficiary Households	63,884	-
Group Loans	933	66
Beneficiary Households	35,255	506
VO Specialists Trained	1,946	340
WO Specialists Trained	1,216	367
<b>6. Forestry</b>		
No. of Nurseries Established	1,408	16
Nursery Area Established (ha)	80.05	5.99
Plants Supplied (mil)	1,4.80	3.60
Plantations by VOs (mil)	7.55	0.83
V/WO Specialists Trained	1,278	116
<b>7. Human Resource Dev.</b>		
Regular Courses	1,051	163
Specialists Trained	2,121	3,061
Refresher Courses	726	86
Managers Conferences	421	40
V/WOs Developed Cadres	22,794	2,378
<b>8. Credit Programme</b>		
No. of Loans	24,173	3,535
Beneficiary Households	538,052	34,491
Disbursements (PRs mil)	1,131.24	224.30
Outstanding (PRs mil)	258.17	-16.90
Net Default (PRs mil)	52.86	13.05
Loan to Saving Ratio	0.76	

Source: AKRSP 1998

\* There are 58.35 Pakistani Rupees to the US dollar.

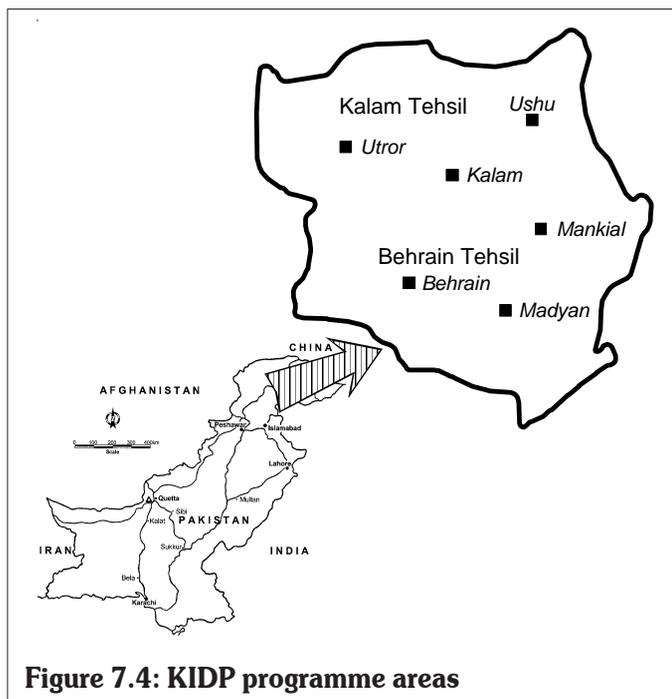
In a survey carried out by AKRSP, the impact of interventions on poverty reduction was seen to have been significant. Data collected through regular Farm Household Income and Expenditure Surveys indicate that poverty on the head count declined from 61 to 33% in Baltistan region, from 42 to 23% in Gilgit region, and from 43 to 36% in Chitral in the period from 1991-97 (AKRSP 1998). At the same time, per capita incomes in the Northern Areas, as a proportion of national per capita incomes,

increased from 27 to 55% in Baltistan region, from 36 to 68% in Gilgit region, and from 37 to 52% in Chitral in the same period.

Economic improvements in the Programme Area have led to improved social conditions for the local people also. Both physical and financial access to education and health facilities has increased for both men and women. Workloads of women have been substantially reduced through water supply schemes and micro-hydel generated electricity. Mainstreaming women's activities in the economic sphere through the forum of Women's Organisations has, in addition to their economic empowerment, led to their enhanced roles in decision-making on major household issues. The CBOs have promoted social harmony and democratic norms and facilitated resolution of disputes in villages and valleys. Awareness of villagers of the opportunities available to them and of their responsibilities towards society has increased.

### ***Kalam Integrated Development Project***

The Swiss-assisted Kalam Integrated Development Project (KIDP) started in 1981. It developed a model for the sustainable management of mountain land, with the participation of community and interest-based community organisations. It was directed principally to improving the quality of life of the mountain farmer (KIDP 1998). Its programme areas are shown in Figure 7.4.



**Figure 7.4: KIDP programme areas**

Previously, the entire population of Kalam Valley derived their subsistence from the forests and earnings from cash crops like potatoes. However, due to continuous monoculture of potatoes and absence of professional guidance, soil diseases developed. Production of potatoes dropped drastically. KIDP has increased the sense of responsibility in the community for forest conservation oriented activities. Local communities are now preoccupied in development activities introduced by KIDP in the forestry and agricultural sectors as well as management and organisation of village committees. They are, generally, satisfied with the achievements of KIDP in different fields. The people of Kalam are receiving handsome financial returns from forest royalties and agricultural crops. KIDP has also explored possibilities for them to channelise the earnings for use in creating more income-earning opportunities.

Over the years KIDP has brought about visible changes in various fields and added to farmers returns through multiple land use. Great enthusiasm has been noticed in farmers for raising orchards, especially of grapes and apples. Training of local people in forest harvesting techniques has also resulted in efficient harvesting operations and less timber wastage.

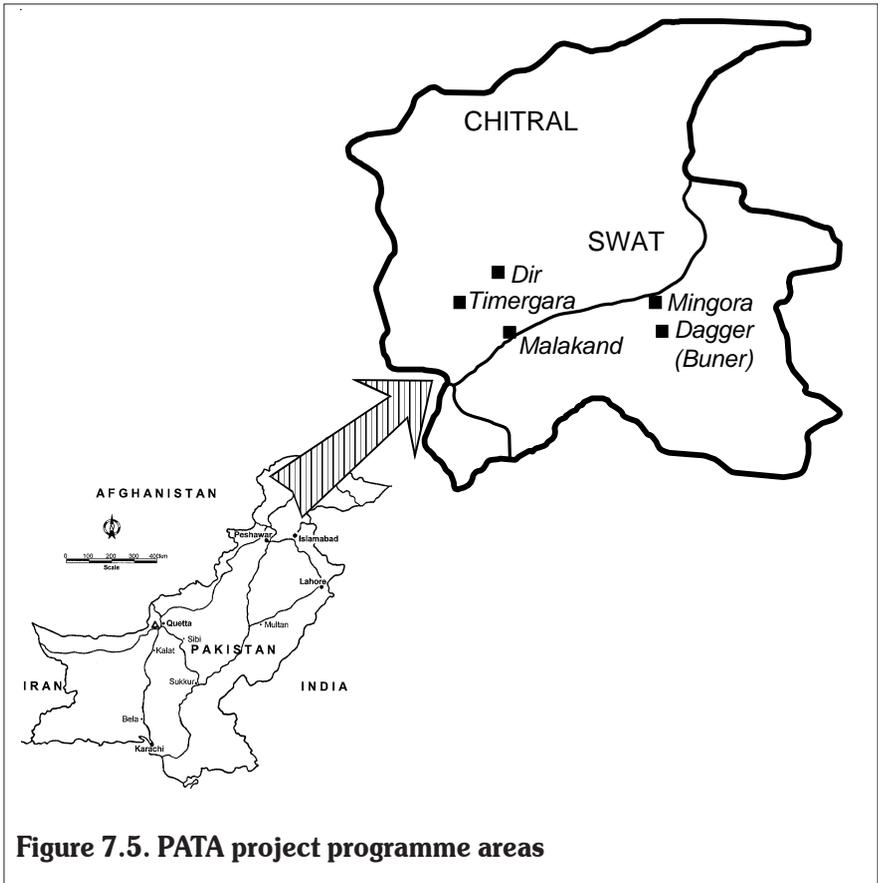
### ***PATA integrated agricultural development project***

The PATA Integrated Agricultural Development (PATA Project) works in selected zones of the Provincially Administered Tribal Areas (PATA) in the NWFP. It has its origins in the Pakistan-Netherlands Groundwater Development Project that was introduced in 1979. Phase one, 1986-1991, ended in 1991 after completing its activities. Phase two, 1992-1996, of the project was executed in three mountain districts of Malakand Division: Southern Swat, Northern Buner, and Malakand Agency. The project objectives were:

1. improvement in living standards, and
2. increase of agricultural production on a sustainable basis for small-scale male and female farmers in Malakand Division of NWFP, Pakistan.

Project activities in phase one concentrated on four districts of Malakand Division in two areas of Dir district, in Malakand Agency, in the north-western part of Buner, and in Swat district from Khawazakhela and Matta southwards including the adjacent valleys. During phase two, Dir district was not involved. The project area is shown on the map in Figure 7.5.

The socioeconomic conditions in the three districts are no different from other mountain areas in Pakistan. Subsistence agriculture is the backbone of the economy in the area. Most of the farmers have small farms. Farmers in Buner have rainfed land for cultivation and Swat farmers mostly have irrigated land. Malakand farmers have both irrigated and rainfed land, more or less equally distributed. More than half of the farmers in these districts are owner operators. Seventy per cent of the farmers are illiterate. The average family size is fourteen. Many crops, such as food (maize, wheat), fodder, and cash crops (sugar cane, rice) as well as vegetables and fruit



**Figure 7.5. PATA project programme areas**

orchards, are cultivated under different cropping systems in these three districts (PATA Project 1996).

Because of the scope of project objectives, the PATA project has developed an implementation structure consisting of three programmes: first, the Agricultural Development Programme (ADP), second, the Land and Water Use Programme (LWUP), and third, the Women in Development Programme (WIDP). The Scheme Development Process (SDP) has clearly increased the participation of water user groups in the development and maintenance of irrigation schemes. Farmers are managing the schemes themselves to use the irrigation water to grow high-value crops. Women’s participation in agricultural development has increased and so has the gender awareness of the men. As a result, over the years, farmers have adopted the advanced technologies extended to them. These technologies have resulted in higher yields and income.

### ***Northern areas' development project***

The Northern Areas' Development Project (NADP) was launched recently in Chilas in the Northern Areas. The project was planned for a period of seven years, i.e., from July 1998 to June 2005. The United Nations Development Programme (UNDP) allocated US\$ 2.6 million, and the project is being implemented in collaboration with the Government of Pakistan (GOP) and the International Fund for Agricultural Development (IFAD) (UNDP 1998).

The NADP focuses on three development areas, i.e., governance, gender, and sustainable livelihoods, each linked to poverty alleviation. The project aims to provide opportunities for expanded and efficient use of land and water resources on a sustainable basis, increased agricultural productivity, improved infrastructural facilities, and provision of alternative employment opportunities. The project provides for equitable participation of men and women in planning and implementation. The specific objectives of the NADP are as follow.

- To organise communities (both men and women) in the core project area into functional entities, capable of identifying development needs and receiving necessary technical input and skill development support from relevant public and private sector agencies to rationalise resource use, enhance productivity, and increase their income levels.
- To enable women to identify and articulate their development priorities and take appropriate measures for their realisation through preferred options and alternatives in the micro-level development process.
- To enable the Project Management Unit (PMU) Monitoring and Evaluation Section to implement a participatory Monitoring and Evaluation System, involving the Community Organisations (COs) and Women's Development Groups (WDGs).
- To establish a Geographical Information Systems (GIS) Unit suitably equipped for collecting/retrieving, analysing, and storing data on natural resources and socioeconomic parameters

The UNDP grant covers all the costs of the Community and Women's Development components, training, demonstration and technical assistance, vehicles, equipment, and a revolving fund for income-generating activities. The main features of the NADP areas follow.

1. Establishment of a Community Development Section (CDS) in PMU to cater to the participatory development requirements of the project — The CDS is to empower the COs and WDGs in the core project area to enable them to use the interventions of line agencies (LAs) on a sustainable basis. The linkages between COs and LAs will be developed actively to achieve sustainability.
2. Establishment of a Community Organisation Unit (COU), one each at Chilas and Darel/Tangir to introduce project philosophy, concept, and strategy — The COU will create initial contact with the target groups for CO formation, carry out Par-

ticipatory Rural Appraisal (PRA) and develop a Village Development Plan (VDP), identify productive and social infrastructure schemes, and implement them with the active participation of the CO. The COU will also carry out a Training Needs Assessment (TNA) and introduce Human Resource Development (HRD) activities with the assistance of CDS and PM.

3. Women and Development Activities are focused on assisting women to address their constraints and improve on their traditional role in the local production system. Provisions have been made for functional literacy and training in basic health education. Demonstrations of vegetable seed production, kitchen gardening, seedling nurseries, poultry vaccination, poultry production, milk processing, sericulture, and apiculture would also be performed to encourage women to adopt new technologies. Technical assistance and studies concerning specific aspects for women in crop, livestock, and forestry production and women-related income-generating activities (IGAs) will be supported under this component of the project.
4. Promotion of IGAs and credit is an important feature of the project for the economic uplift of the area. A revolving fund of US\$ 200,000 has been made available to finance group and individual loans.
5. Establishment of GIS facilities in the NAs with an initial focus on a data inventory of the natural resource base leading gradually to the use of remote-sensing technologies for resource assessment and monitoring and identifying the potential areas prone to degradation

### Comparison between public sector and private sector efforts

Table 7.5 highlights the cost of various categories of SAP projects and other infrastructural projects constructed by the National Rural Support Programme (NRSP) and the Public Sector respectively. It shows that NRSP costs are substantially lower than the costs incurred by the public sector. For example, SAP drinking water schemes cost PRs 1,971 per household when constructed by NRSP, while the cost is PRs 5,288 in the public sector. Similarly, primary education per student costs PRs 440 under NRSP and PRs 1,350 in the public sector.

Not only are the costs in the private sector lower than in the public sector, the schemes implemented by the private sector are found to be more sustainable. The indications

Table 7.5: Comparison between public sector and NRSP schemes

Type of Scheme	NRSP	Public Sector
SAP: DWSS	PRs 1,971 per Hhd	PRs 5,288 per Hhd
SAP: Drainage	PRs 736	PRs 1,200
SAP: Primary Education	PRs 440 per Student	PRs 1,350 per Student
Other Infrastructure	The cost of NRSP schemes is 50% less than public sector schemes and they give the surety of all operation and maintenance.	

Source: Planning Commission 1998

are that AKRSP has been more successful in alleviating poverty in the project areas than the public sector.

#### **7.4 Sustainable Natural Resource Management**

Sustainability requires a balanced relationship between human needs and the finite size and resource capacity of the natural resources. Human welfare must be pursued within the natural environment's capacity to tolerate, support, and absorb such use.

Sustainable Resource Use (SRU) is the process through which the concept of Sustainable Development is applied to the use of natural resources, renewable and non-renewable. With an integrated approach, sustainable resource use is defined as:

“the use of natural resources that always remains within the limits of environmental capacity and, on that basis, meets the needs of the present generation, particularly those of the poor, without compromising the ability of future generations to meet their own needs” (WWF 1993).

Such a concept brings together the idea of limits and the concept of equity and interdependence.

#### **Misuse of natural resources**

As noted earlier, forestry, grazing and limited agriculture are the main land uses in mountain areas of Pakistan. The population in forested mountain areas is increasing rapidly. So are the prices of timber. Both of these have serious impacts on the forests. The increase in human population removes increasing amounts of wood from the forests to meet local needs for timber and fuelwood. It has also extended the cultivation of mountain slopes and increased the rate of deforestation. On the other hand, the very high demand for and prices of timber have increased the illegal removal of trees. Although considerable forest depletion has been occurring in the mountain areas for the past century, rapid population increase and rapidly rising timber prices seem to have escalated the rate of cutting in recent decades.

Biodiversity conservation is not well understood as an issue by the residents of these areas. However, mountain areas are rich in biodiversity. For example, the NWFP has biological resources such as the snow leopard, western tragopan pheasant, and elm forests that are of global significance (SPCS 1996). In addition, there are large numbers of mammals and birds that are locally threatened by unsustainable degrees of hunting (Table 7.6). The principal threats to biodiversity are deforestation, overgrazing, soil erosion, water pollution, uncontrolled hunting, and fishing.

#### **Public initiatives to restore natural resources**

There are many laws in the country covering areas such as forestry and wildlife protection, for example, the Forest Policy 1997, provincial, and Azad Kashmir and Northern Areas Wildlife Acts and Ordinances. On the policy front, Pakistan's National

**Table 7.6: Suspected threatened or endangered mammal and bird species in the NWFP**

<b>Mammals</b>			
Barking deer	(E)	Grey goral	(T)
Brown bear	(E)	Grey wolf	(T)
Chinkara gazelle	(E)	Leopard	(T)
Flat-horned markhor	(E)	Black bear	(K)
Hog deer	(E)	Caracal	(K)
Kashmir grey langur	(E)	Himalayan ibex	(K)
Punjab urial	(E)	Himalayan musk deer	(K)
Snow leopard	(E)	Leopard cat	(K)
Straight-horned markhor	(E)	Lynx	(K)
European otter	(V)	Palas cat	(K)
Indian pangoli	(V)		
<b>Birds</b>			
Cheer pheasant	(E)	Long-tailed prinia	(V)
Western tragopan pheasant	(E)	Marbled teal	(V)
Kalij pheasant	(E)	Pink-headed duck	(V)
Monal pheasant	(E)	Lagger falcon	(T)
Snow partridge	(E)	Bar-headed goose	(K)
<b>Migratory</b>		Black vulture	(K)
Houbara bustard	(E)	Grey-legged goose	(K)
Peregrine	(E)	Large billed bush warbler	(K)
Saker falcon	(E)	Lesser white fronted goose	(K)
Siberian crane	(E)	Plas fish eagle	(K)
Comb duck	(V)	Sociable plover	(K)
Cotton teal	(V)	White-headed duck	(K)
Dalmatian pelican	(V)	Wood spine	(K)

E: endangered

V: vulnerable

T: threatened

K: unknown, but suspected

Source: SPCS 1996

Conservation Strategy (NCS) aimed to evaluate the economic policies of the country for their impact on the natural resource base and to merge biodiversity concerns with the decision-making matrix. The NCS looks at the opportunities for improvement in various sectors of the economy with a view to steering the country towards a sustainable future (Hasnain 1998).

The Pakistan Environmental Protection Act 1997 was passed by the GOP and is being implemented. The Act recommends the establishment of a Pakistan Environmental Protection Council. Among other things the Council is to provide guidelines for the protection and conservation of species, habitats, and biodiversity.

During the last three decades, several initiatives have been launched to improve the management of natural resources in mountain areas of Pakistan. For instance, in the NWFP, initiatives include extensive forest tree plantation, mostly on privately-owned mountain land; improvements in rainfed agriculture; an increase in the efficiency of

irrigated agriculture; improvement in the marketing of fruit and vegetables; and reorganisation of the Livestock and Dairy Development Department to enlarge its focus to include livestock production and genetic improvement in addition to animal health.

### **Private sector efforts to restore natural resources**

The Government of Pakistan is encouraging the private sector to develop methods of sustainable use for natural resources. The Pakistan Forest Institute - Peshawar, for instance, has carried out wildlife management training programmes with international organisations such as The World Conservation Union (IUCN), Food and Agriculture Organisation (FAO), and United Nations Development Programme (UNDP).

Private sector efforts to restore natural resources have been quite successful. For instance, the Swiss-assisted Kalam Integrated Development Project developed a model for the sustainable management of mountain land with the participation of community and interest-based community organisations. It emphasises the participation of communities in the sustainable use of forest and grazing lands. Similarly, the German-assisted Siran Forest Development Project seeks to combine the intensive forest development approach developed in Kaghan with the social forestry approach. Started in 1991, its principal challenge is to develop sustainable joint management systems for the affected forests of Siran Valley.

The European Union-assisted Uplands Rehabilitation Project soon to start in the Galit, Dir-Kohistan, and Murre-Kahuta areas has been largely designed based on the experience of the Kalam Integrated Development Project. They emphasise the sustainability aspect of integrated management of natural resources. Other innovative donor-assisted projects include the Dutch PATA Irrigation Project, Pak-Swiss Swabi Irrigated Agriculture Project, and ADB-assisted On-farm Water Management Project.

Protection of biodiversity in Pakistan is largely a project-based initiative. The IUCN has introduced new initiatives such as the National Biodiversity Action Plan, a Protected Areas' Management Proposal, and provincial conservation strategies. Integrated resource management projects include Ziarat's juniper forests and an urban social forestry component, Orangi Pilot Project. A project on 'Maintaining Biodiversity in Pakistan with Rural Community Development' by IUCN-Pakistan is in progress to support local people in developing and implementing remedial action in degraded areas where biodiversity has been reduced. The project aims to demonstrate that conservation of biodiversity can be enhanced by providing rural people with the technical skills to manage wild species and habitats. The project focuses on the mountain regions of the Northern Areas and the NWFP.

WWF-Pakistan has also carried out a number of projects to protect ecosystems and species in various parts of the country. Since 1971, WWF has completed 87 projects, while 36 projects are in progress. The largest chunk of the WWF-Pakistan resources are invested in two areas, namely, field conservation projects to protect the remaining

wildlife and natural habitats and education and awareness programmes in collaboration with the youth of the country.

Similarly, the Pakistan Wildlife Conservation Foundation, the World Pheasant Association, and the Pheasant Conservation Forum are other NGOs involved in wildlife conservation in collaboration with the Government of Pakistan.

### **Changes in the farming systems**

Before the 1960s, the main crops in mountain area of NWFP were maize, wheat, rice, pulses, jute, and poppy. Local varieties of apples, peaches, plums, grapes, walnuts, and fruit belonging to the pear family were abundant then but were planted, in most cases, on the edges of fields or here and there in the fields. Also, in most cases the fruit was not for commercial purposes, except for walnuts. Cultural methods were the sole protection against pests and diseases of crops and fruit.

In early 1960s, new varieties of apple were introduced and planted in orchards. At first only the big landholders planted apple orchards. As a result of the economic benefits of apple growing, the area under cultivation increased substantially. Both big and small landholders planted apple trees on their lands. In the 1980s, some farmers introduced peach and cherry orchards in the area. Those lands that could not be cultivated with apples, pears, peaches, and cherries were left for other agricultural crops. Some farmers also left their land for other crops because of strong traditional tendencies or because of poverty.

### **Pesticides and resource use sustainability**

Pesticides were introduced into the NWFP in the early 1960s for the eradication of mosquitoes. In the early period, apple orchards were not treated with pesticides. The use of pesticides started in late 1960s or early 1970s for apple orchards. In the beginning, only kerosene oil was sprayed once a year. As the area of land under apple cultivation grew, problems of pests and diseases increased.

In 1989 the apple crop was so good that even small farmers bought power pumps and their capacity to use pesticides and fertilisers increased. Pesticides were believed to be the one and only remedy for infected crops. Spray pumps were hired and very small farmers used them. However, the yield of apples in the early 1990s was very poor. Many orchards withered. Some farmers removed their trees. Because of the increased prices of agro-chemicals, production costs increased to such an extent that apple orchards, for many, remained no longer profitable. Many started seeking alternatives and some planned to cut down their orchards and go back to producing the crops their forefathers produced. To revert to the traditional pest control system, however, farmers needed more information and assistance.

The problem needs to be assessed on a scientific basis both from the economic as well as the health perspective.. For intervention in this sector, social organisation of the communities is important to arrive at viable solutions to the problem by adopting a bottom-up approach.

## 7.5 Recommendations

- a) Instead of a project-based development, a poverty alleviation strategy needs to focus on policies to provide an enabling environment for general growth and development.
- b) New interventions should not be adopted without proper research. For example, maize (an indigenous crop) was replaced by potatoes or the same crop was replaced with its hybrids. Although new crops helped increase farm incomes, it was a short-run phenomenon. In the long-run resource degradation caused fluctuations in production and income.
- c) For sustainable natural resource management and conservation in mountain areas, people-centered long-term planning can play an effective role. Community participation in planning and implementing development projects ensures their effectiveness and success.
- d) A rural support structure to foster an economic and social infrastructure, without which the rural poor cannot overcome the handicaps from which they suffer, is needed. This outside support is essential to help the poor rise above the level of subsistence. In Pakistan many Rural Support Programmes (RSPs) have been launched based on the decade-old successful experience of the AKRSP in northern areas of the country.
- e) Facilitate the poor to produce a development partnership entailing fulfillment of the obligations of organisation, generation of capital through savings, and taking over of responsibilities by acquiring managerial, productive, and other human skills through a programme of human resource development: this is the key factor in making poverty alleviation programmes a success.
- f) Political, administrative, and financial commitment by governments over the long term is important to implement rural development programmes for poverty alleviation in mountain areas.

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## Annex 7.1: Growth trends over time

	Agriculture	Major Crops	GDP	GDP per Capita
1988-89	6.9	7.0	4.8	1.7
1989-90	3.0	-0.1	4.6	1.4
1990-91	5.0	5.7	5.6	2.4
1991-92	9.7	15.5	7.7	4.5
1992-93	-5.3	-15.6	2.3	-0.7
1993-94	5.2	1.2	4.5	1.7
1994-95	6.6	8.7	5.2	2.3
1995-96	5.3	7.2	4.6	1.5
1996-97	0.7	-4.5	3.1	0.3
Average	4.1	2.8	4.2	1.7

Source: Finance Division 1997

## Annex 7.2: Changes over time in per capita availability of essential commodities

	Unit Per Annum	Per Capita Availability 1969-70	Per Capita Availability 1976-77	% Change in Per Capita Availability 1969-70/1976-77
Wheat	Kg.	105.15	113.03	7.49
Rice	Kg.	24.45	25.81	5.56
Pulses	Kg.	6.80	8.02	17.94
Sugar Refined	Kg.	7.21	9.74	35.04
Veg. Ghee/Oil	Kg.	2.13	5.54	160.09
Cotton Cloth	Metres	12.07	12.83	6.30

Source: Planning Commission 1997

## Annex 7.3: Population profile of Pakistan

Pakistan (1995)	(Millions)	% of Population
Population	135	
Rural	89	66
Urban	46	34
Adult Population (15+)	76	56
Primary School Age Population	20	15
People not expected to survive to the age of 40	21	16
People without access to safe drinking water	61	45
People without access to health services	54	40
Mal-nourished children under 5	9	38
Adult Illiterates	47	62
Female Illiterates	29	76
Out-of-School Children	8	42
Income Poor	42	30

Source: UNDP 1996