

## VILLAGE CASE STUDIES IN THE MANAGEMENT OF NATURAL RESOURCES

### Background to the Village Studies

#### *The Scope of Village Studies*

Nine villages in Gilgit district were chosen for an in-depth study of institutional arrangements for resource management. These nine villages are:

1. Broshal, in the Nagar *Tehsil* of Nagar Sub-division;
2. Khaiber, in the Gojal *Tehsil* of Hunza Sub-division;
3. Passu, in the Gojal *Tehsil* of Hunza Sub-division;
4. Roshanabad-Sherabad, in the Aliabad *Tehsil* of Hunza Sub-division;
5. Rahbat, in the Sikanderabad *Tehsil* of Nagar Sub-division;
6. Rahimabad I, in Gilgit Sub-division (which has only one *Tehsil*)
7. Oshikhandass, in Gilgit Sub-division;
8. Sherqilla, in the Punyal *Tehsil* of Punyal-Ishkoman Sub-division; and
9. Thingdass, in the Punyal *Tehsil* of Punyal-Ishkoman Sub-division.

These nine villages are described in terms of the selection criteria in Table 1.

For the present study, the organizational structure of each village was examined with respect to a number of natural resources and other common property. The purpose was to analyze the performance of the village vis-a-vis a list of indicators of collective management. Both traditional and non-traditional forms of common property were examined so as to identify the institutional innovations introduced by a village. In particular, the analysis focused on:

- o any outstanding strengths and weaknesses of the VO;
- o significant elements of the process of constructing and maintaining the irrigation channel and the subsequent process of land development;
- o the organization of a cadre of village specialists who perform specialized tasks for remuneration by the VO;
- o innovations in the management of forests and pastures; and
- o brief notes on the VO's performance with respect to non-traditional common property such as community-owned tractors and VO-owned hybrid cattle (the latter being referred to as the Heifer Project).

Table 2 summarizes the presence or absence of selected indicators of collective management in the nine villages. In addition, the case studies provide basic locational and agroecological data on each village, supplemented by some statistics on the resource base.

Table 2: Indicators of Collective Management in the Nine Selected Villages

Village	Access to Nullah <sup>2</sup>	PPI	Land Develop. Loan?	Common Tract?	Heifer Project?
Broshal	Shared	Irr. Chnl	Yes	Yes	No
Khaiber <sup>1</sup>	Exclusive	Irr. Chnl	Yes	Yes? <sup>3</sup>	Yes
Passu <sup>1</sup>	Exclusive	Irr. Chnl	Yes	No	No
Roshanabad-Sherabad	Shared w/5 VOs	Irr. Chnl	No	Yes	No
Rahbat	Shared w/8 VOs	Irr. Chnl	No	Yes	No
Rahimabad I <sup>1</sup>	Shared w/4 VOs	Link Rd./ Irr. Chnl	Yes	Yes?	Yes
Oshikhandass <sup>1</sup>	No Nullah	Sed. Tank	No	Yes	No
Sherqilla <sup>1</sup>	Shared w/2 VOs	Irr. Chnl	Yes	Yes	No
Thingdass <sup>1</sup>	Shared	Irr. Chnl	Yes	Yes	No

*Notes:*

1. The village also has at least one cooperative society other than the AKRSP VO; Oshikhandass and Sherqilla have 3-4 coops each.
2. *Nullah* is the local term for the valley/watershed in which the forests and pastures are located;
3. A (?) against the 'Yes' for community tractor indicates an unconfirmed statement that the tractor is owned by a village cooperative society.

*Traditional Management System for Village Resources*

The majority of villages in Gilgit District are located on alluvial fans or river terraces, dominated by a backdrop of steep mountains with narrow openings into *nullahs* that lead to alpine pastures, glaciers, and snow fields. The *nullahs* contain mountain streams that feed the gravity channels

that irrigate the fans and terraces. From cultivated fields, water drains freely (when it is abundant) into rivers that merge into the River Gilgit or the River Hunza which, after their confluence near Gilgit Town, flow into the River Indus within the boundaries of Gilgit District. The *nullah* contains one or more alpine pastures and, occasionally, flatter meadows and land sown with barley or potatoes (see Kreutzmann 1985 for a fuller description). The highest of these pastures are at 4,600 masl, and they are used only for grazing yaks, although they may sustain protected wildlife (including the snow leopard). The migration of livestock to the pastures starts in April and May. Usually men and children accompany the animals to the pastures but in Wakhi-speaking areas (including Gojal *Tehsil*) women maintain the dominant role in tending livestock and making dairy products in the pastures. Each stage on the way to the highest pasture has huts for temporary residence, usually next to the watering holes. These resources belong to the village(s) using the pasture. Barley or potatoes may be cultivated on individual fields. Forest products may be brought down from the *nullah* on donkeys or carried on the back. The return movement from the pastures to the villages takes place in September or October.

The snow fields and glaciers in the *nullah* melt into mountain streams that are tapped for irrigation. The channel head may be several miles from the village, and its maintenance is the collective responsibility of the village. In spring, the entire village turns out to clean the channel before the date for first irrigation. This common effort is part of history and is referred to as *rajaki*. Violators of *rajaki* are required to pay a fine; usually wages for the number of days on which the individual absented himself from *rajaki*. Much of the length of a channel may be lined with trees that are individual property. Routine maintenance during the agricultural year is carried out by one or more *chowkidars* paid through contributions made by the villagers in cash or kind. The *chowkidar* enjoys a high status in the village. In periods of water scarcity (such as at the time of planting in spring) the villagers practice *warabundi*, i.e. a roster of turns by which water is used by each farmer for a specified length of time.

The land beyond the access of the irrigation channel is usually steep and uncultivated, supporting some grass and *hyppophae*. It is usually grazed in winter by free-grazing livestock. This winter 'pasture' is common land. Winter grazing also takes place on other uncultivated land, if any is available by tradition in the proximity of the settled village. Significant parts of such land have been converted to higher-payoff uses once irrigation has become available, because such land has represented the natural avenue for expansion in cultivated areas over the years.

Steep slopes often dominate the landscape below the irrigation channels and above the settled villages. With careful irrigation, this land can support lucerne and trees that are planted on individually-owned plots running vertically down the slope.

The settled village itself is dominated by houses, individual crop fields, and trees on steeper land. Farming fields are often surrounded by trees. There are well-defined rules governing the distance at which a tree can be planted from a neighbour's field. These rules are meant to ensure adequate sunlight and water to field crops. After the maize harvest in autumn (or after harvest in the single-crop areas), all crop fields may be grazed for stubble. Free-grazing coincides with the arrival of livestock from the alpine pastures. (Some villages are now beginning to ban free-grazing, perhaps in response to the benefits from tree planting on village land). Steeper parts of the settled village are planted or allowed to regenerate as individual woodlots.

The version of traditional systems, as depicted above, is becoming increasingly differentiated as different villages respond in different ways to the forces of change. Some of the important aspects of this differentiation are brought out in the case studies below.

## General Analysis of Village-level Organizations

The Village Organizations sponsored by AKRSP have several features in common. The membership of the VO is open to all households in the village. The general rule is one male per household but exceptions to this rule may be found in instances where an occasional household contributes two members to the VO. When women participate actively, it is either through their own organization or by attending the VO meeting. In traditional villages, there is little active participation by women. In many Ismaili villages (particularly the Wakhi-speaking ones) men and women meet in a joint assembly and, in other cases, women may be represented in the VO by selected (male or elderly female) individuals.

In large villages, there are multiple VOs organized on the basis of neighbourhoods. Where the neighbourhood coincides with an irrigation channel's access area, each VO will have its own land development plan and loan, otherwise, land will be developed jointly by the concerned VOs. Similarly, when one project has to be implemented by several VOs, each VO is apportioned a share of the work by consensus. The multiplicity of VOs within a village does not, at present, affect the management of forests and pastures common to the village.

VOs were formed initially to implement and maintain PPI projects, start a group savings' programme for, and nominate and support a cadre of village specialists trained by AKRSP. VOs initially met every week. Over time, the VOs have acquired a longer-term perspective on village development and now participate in all the programmes offered by AKRSP and collaborating agencies. They also meet less frequently (2-4 times each month) now that the vast majority of VOs have completed their PPI projects.

VOs receive a grant from AKRSP for implementing their PPI projects. Most, but not all, VOs were far-sighted enough to save from this windfall labour income and deposit the savings in the VO's group account. These savings were augmented over time by savings from the sale of produce and non-farm employment. The 376 VOs of Gilgit District had combined savings of nearly Rs 24 million by the end of 1987. These savings are used by AKRSP and its collaborating bank as cash collateral against which the VOs are given loans for various development programmes. Rs 39 million had been disbursed as short-term and medium-term loans by the end of 1987, with a nearly flawless recovery record so far.

Unskilled labour for village projects is contributed by the villagers themselves. If the work is to be done without payment, as under the *rajaki* system, then each individual is expected to contribute equally; defaulters will pay the wage cost of their absence. Presence may be voluntary, as with PPI projects, if labour is being paid wages. The tradition is to reserve village-level tasks for the villagers themselves, although that tradition is now changing as more and more market exchange of labour develops. A village will also give preference to its own residence when hiring skilled labour.

Technical services for the VOs come from AKRSP and collaborating agencies and from the villagers themselves. AKRSP has a field unit called the Social Organization Unit (SOU), consisting of a Social Organizer, an engineer, and an agriculturalist. This unit is mobile and provides AKRSP with its technical and motivational outreach to the villagers. The VO itself supports a cadre of village specialists, in practical and managerial skills, who are trained by AKRSP and remunerated for services and supplies by the VO; supplies may be obtained at cost from AKRSP.

The mobilization of resources from among VO members is subject to a variety of rules (or, in some cases, no rules). For financial resources, contributions from members may be raised by one of the following mechanisms:

- o a fixed minimum to be contributed by each member;
- o an equal contribution by each member;
- o contribution in proportion to perception of benefits;
- o contribution on the basis of economic status; or
- o left to the decision of the individual.

There are no aggregate data on how many of the VOs follow each type of rule. Before AKRSP started interceding with the VOs, the majority of them appeared to be asking for a minimal fixed amount from their members for group savings. AKRSP's suggestion has been to adopt options 3 or 4 and many VOs have responded positively to this suggestion.

In the case of the utilization of loans given by AKRSP, there is a difference between short-term production loans and medium-term development loans. Short-term loans (for fertilizers, plants, marketing, etc.) are given out by the VO according to a household's demand for inputs or contributions to the produce that is marketed. Medium-term land development loans are divided equally among VO members; the rationale being the suggestion by AKRSP that a minimal amount must be available to each member to preserve equitability in the use of a rationed input. Better-off individuals may supplement the loan with their own cash resources.

In the case of village specialists, each user pays a fee that is in proportion to the services utilized. This straight-forward rule applies most commonly to para-veterinarians and plant protection specialists.

Errant VO members are disciplined through a series of graduated measures. An offender who has injured the interest of part or whole of the VO will be asked to render compensation to the injured party. One who breaks a VO's rule for the protection of common property is expected to pay the stipulated fine. A refusal to honour the decision of the VO is met, initially, by an attempt by the elders to convince the offender to obey the decision of the VO. If this and other means fail to bring around the dissenter, then, the traditional penalty of social boycott of the offender's household is imposed. This is considered a severe punishment.

Communications among members of the VO take place formally in the VO meeting. Here, VO matters are discussed, the options offered by outside agencies are examined, and every member has the right to express his opinion. Decisions are reached by consensus or majority vote. VO decisions are communicated to AKRSP by means of a resolution of the VO. The resolution is forwarded to the area's Social Organizer whose recommendation on it is nearly always respected by the management group. The Social Organizer and his associates on the SO Unit tour their area almost non-stop and provide the most reliable and effective channel for communications between VOs and the management group of AKRSP. In addition, frequent field visits are undertaken by the management. The VO itself sends its office-bearers and specialists to Gilgit for VO Conferences and refresher training in specialist skills. Proceedings of VO Conferences (one every month, for about 80 VOs each) are published and sent to each VO through the SOU.

The Village Organizations interact formally or informally with a large number of religious, political, social, economic, and government organizations. It is not possible to sketch out the relationship between the VOs and each of the other organizations active in Gilgit District. In the next two paragraphs, a list of such organizations is presented to illustrate the context in which the VO works.

All villages have regular religious and traditional gatherings in addition to VO meetings. Many villages have a formal religious organization working in the village. The Ismaili villages participate in the programmes of the various Aga Khan service institutions (for health, education, and housing). Many villages, particularly those supported by the Aga Khan Economic Planning Board, have village cooperative societies.

The political structure of the district revolves around the system of Local Bodies and Rural Development (LB&RD). There is a District Council in Gilgit with an Annual Development Plan drawn up on the recommendations of District and Union Council members. Each Union Council covers 3-5 villages, and there is a Union Council member from practically every village. Elected councillors are provided with technical support by the LB&RD Department of the Northern Areas Administration. Other line agencies operating in the district include; the Agricultural Department; the Animal Husbandry Department; the Forest Department; the Northern Areas Public Works Department; the Health Department; the Education Department; the Social Welfare Department; etc. In addition, there are commercial institutions, including scheduled banks and specialized institutions for agricultural, industrial, and cooperative capital.

### **Broshal**

Broshal is the highest of the nine villages studied. Its altitude is 2,740 masl (only one crop can be grown each year on a given plot of land), and it is located 130 km from Gilgit and 40 km from the KKH, in the Hoper Valley of Nagar. Broshal lies in one of the more remote parts of Gilgit. Its 105 households belong to the Shia branch of Islam.

The documentation on Broshal and its neighbouring hamlets includes the works of Butz (1987) and Semple (1986) and notes and case studies undertaken by the SO Unit of AKRSP.

The following organizations are active in Broshal: the Union Council of the Local Bodies & Rural Development (LB&RD) system; the Project Committee of LB&RD; the traditional *jirga* (council of elders); the Committee to oversee the *Imam Bargah* (religious place); the AKRSP-sponsored Village Organization, and two committees set up under the aegis of the VO to manage the VO's tractor and enforce the livestock grazing rules of the VO. The Aga Khan Health Services are exploring the terms of partnership under which they can collaborate with the Broshal VO. In addition, there is a government school and dispensary.

Traditionally, as in other villages in the district, Broshal had a council of 7-10 elders (called the *jirga* led by the village headman (the *numberdar*). The *numberdar* was appointed by the *Mir* and was also responsible for the collection of taxes from the village. The *jirga* regulated the management of natural resources at the village level, including water distribution and allocation, channel maintenance, movements of livestock to the various pastures and within the village, dates of closure of pastures, etc. This system appears to be in force even today, but the *numberdar* has no official status and the *jirga* faces competition from other (religious, political, and economic) organizations. For inter-village disputes, the *Mir* was the arbitrator; today, there is increasing recourse to courts and government administration.

AKRSP's intervention in Broshal started with its sponsorship of the Hunono irrigation channel. This channel already existed but was in a state of disrepair and subject to occasional destruction as a result of landslides. The villagers proposed that the channel should be improved, with concrete work where necessary, to increase the reliability of water supplies and reduce the considerable risk to their agricultural production. AKRSP's agreement to this suggestion led to the formation of the Broshal Village Organization in July 1983.

The Broshal VO is led by a strong village activist, the Manager of the VO. An ex-serviceman, the Manager has run the VO with a fair bit of personal authority in support of the AKRSP message of collective management. As a result, the VO has been consistently ahead of other VOs in the valley in accepting AKRSP-sponsored activities, particularly those that require strong collective management. For example, it was reported in Semple's (1986) case study that the bulk (75 per cent) of the VO's savings were raised when the Manager decided to transfer part of the AKRSP grant for the channel to the VO's group savings' account. Voluntary savings were very small and came in response to the VO rule that each member must save one rupee per week. The savings were offered by the VO as cash collateral against a loan provided by AKRSP for the purchase of a tractor; one of the first VO-owned tractors in Gilgit.

The purchase of the tractor led to the first institutional innovation by the VO. The VO set up a tractor committee to manage the day-to-day affairs of the tractor. It appears, however, that the tractor's operations in Gilgit Town (when it is not in use in the village) are in the hands of a relative of the Manager who lives in Gilgit. The committee's existence has been a source of some concern at AKRSP, since AKRSP fears that such committees may take over control of an asset rather than remaining answerable to the general body that elected them. The tractor committee has not, so far, usurped the powers of the VO over tractor affairs. At the same time, the VO has decided that each member will deposit Rs 200 in group savings against future payments for the tractor, whether for maintenance or for loan repayment.

The VO also established a committee to control free grazing in the village. The committee drafted both punitive and preventive edicts. It is possible that the committee is effective in discharging its mandate. It needs to be noted, however, that Broshal experiences some seasonal migration of men. Control over free grazing reduces the returns from livestock by increasing the labour cost of livestock control. For free-grazing to be controlled, the villagers must realise greater gain from the crops that can be grown on the controlled fields. It is not yet clear whether this trade-off has been resolved in favour of crops and against livestock.

The village has an active para-veterinarian who has earned significant amounts from vaccinating livestock and considerably reducing their mortality rates. This specialist has been remunerated regularly by the VO for his services and supplies.

There are no significant innovations in the management of forests and pastures. The traditional system of the Hoper Valley continues to be in place.

## **Khaiber**

Khaiber village, lying in the single-cropping zone at an altitude of 2,600 masl, and about 180 km from Gilgit Town on the KKH, has perhaps the most remarkable Village Organization in AKRSP's project area.

Khaiber has 55 households belonging to the Wakhi ethnic group and following the Ismailian tradition of Islam. These villagers are highly educated and close-knit. Their VO is led by a superior village activist, the President of the VO.

The documentation available on Khaiber includes the following references; four papers prepared for an AKRSP workshop, viz., Abidi (1987), Husain (1987b), Hussein and Karmali (1987), and Magrath (1987), Caroe (1986), CDC (1987), Meghji, Tetlay and Tejani (1987), and Semple (1986).

The following organizations are (or have been) active in community-oriented work in Khaiber; the Union Council of the LB&RD system; project committees set up for specific LB&RD projects; the project committee set up to implement the rural water supply project of the Community Basic Services' programme of UNICEF; the Government of Pakistan and the Aga Khan Foundation; a cooperative society; the Aga Khan Health Services; the Aga Khan Education Services; an AKRSP-sponsored Village Organization; its Project; the *Ismailia* Local Council; and the Ismailian *Tareeqi* Board (for religious affairs). In addition, there is a government school for boys and a school for girls managed under the Aga Khan Education Services. There is also a hydro-electric power station that provides electricity to the neighbouring villages of the Gojal Tehsil.

The Khaiber VO is unique because of the extent of collective management practised by it. The AKRSP-sponsored, new irrigation channel has enabled the VO to irrigate and develop a large tract of previously low-productivity winter grazing land, lying at a distance of 2-3 km from the village. The VO allotted portions of this land for use as: cropland; a fruit orchard; and a multi-purpose nursery for fruit and vegetables. All the new land is considered to be the common property of the VO, although the crop land will be assigned to individuals through the traditional system of lottery once it is developed. The VO has hired three *chowkidars* to be responsible for the irrigation of the new land. This is an innovative extension of the traditional practice of hiring a village *chowkidar* to clean and maintain the irrigation channel. Development of the crop land is the responsibility of the VO and individuals are assigned duties by turn to manage this process. The nursery is managed by the women of Khaiber, with the assistance of one male specialist and six women trained by AKRSP. Marketing from the new land is also done collectively by the VO. Women participate regularly in VO meetings and have a say in collective decision-making over common property.

Because of its ability to manage assets collectively, Khaiber was selected to be the recipient of 10 high-yielding hybrid cows which had to be housed in a single unit. This operation is part of a grant from Heifer Project International. The VO sent its nominees for training in basic animal production techniques; it allotted a piece of land (2-3 km from the settled village) for the construction of cattle sheds; and it organized the supply of considerable amounts of fodder that were needed by the new cows. The most recent information available indicates that the Heifer Project cows have the highest milk yields among all eight of the Heifer Project villages sponsored by AKRSP.

The Khaiber Village Organization supports a large cadre of village specialists. One of the earliest specialists was the para-veterinarian. His effectiveness in reducing mortality rates has enabled him to pursue his new specialty as a part-time job. The VO has also invested Rs 550 in an automatic syringe, thereby reducing the time costs of vaccination. Part of this saving has been passed on to VO members by taking lower charges. Several other specialists in Khaiber pursue their new vocations as part-time jobs, thus testifying to the VO's ability to create new employment opportunities within the village in response to the perception of higher returns for specific farm-based activities.

The issue of changing patterns of profitability has also influenced the village to take steps to stop the centuries-old practice of free-grazing. Villagers are convinced that free-grazing needs to be controlled in order to benefit from the improved marketing opportunities for fruit. Apple trees can now be seen in wheat fields, although previously no tree could last long outside a boundary wall. The village has found it possible to transfer free-grazing animals in autumn to its traditional winter pasture. Thus, an institutional innovation has come about as a result of changing markets and the relatively small cost of institutional change.

The overall trend in the allocation of labour, land, and livestock in Khaiber appears to be one of specialization. This specialization has been carried out with innovations and has reinforced the spirit of collective management. It is possible, taking the example of Khaiber, to see specialization in resource use as an innovative response to changing patterns of profitability and innovations in collective management as vehicles for growing specialization. Numerous jobs have been created in the village as a response to new ways of increasing income from agriculture. This has happened (in contrast to some other villages) despite the availability of off-farm opportunities and a high level of education in the village.

### Passu

Passu is very similar to Khaiber in terms of some important features; and yet, it represents a development situation that varies substantially from that of Khaiber. Passu, with 67 Wakhi-speaking households of the Ismailian tradition, is located at an altitude of 2,440 masl, about 150 km from Gilgit Town on the KKH. It is in the single-cropping zone. Documentation available for Passu includes the four workshop papers cited above for Khaiber, as well as AKRSP (1984); CDC (1987); Conway et al. (1985); Kreutzmann (1985); Saunders (1983); and World Bank (1987).

The following organizations are (or have been) active in Passu; the Union Council of the LB&RD system; project committee for rural water supply under the Community. Basic Services programmes; the Village Production Group organized by the Integrated Rural Development Programme (IRDP) of the United Nations Development Programme (UNDP/FAO); a multi-purpose cooperative; a potato seed growers' association organized by UNDP/FAO for working with a commercial firm (Jaffer Brothers); the Village Organization and its women's group; and the Ismailian Local Council.

According to one hypothesis (World Bank 1987), the distinguishing feature of Passu is that it commands the access to the Passu and Batura Glaciers, and the surrounding alpine scenery is popular with growing numbers of tourists, trekkers, and expeditions. According to another point of view, Passu is distinguished by its factional VO and the lack of an acceptable activist within the VO.

Passu's PPI is a new irrigation channel that takes off from the Batura Glacier and brings water to a large tract of land that was previously used for winter grazing. As a result of the new channel each household in Passu increased its land holding by five with an additional 4.5 hectares. This channel has succeeded in bringing water to the new land, whereas several attempts before it had failed. It appears that the major reasons for earlier failures were: (i) the lack of proper surveying techniques and (ii) the uncertain movement of glaciers. Villagers, using the traditional methods of following the water level, ended up by the channel being too low to have access to any significant area, or else the glacier advanced to a point which made the location of the take-off point too low for necessary access. AKRSP assisted the VO by putting down a proper alignment. The site survey also used information on the movements of the glaciers collected by Chinese road engineers in the course of their work on the KKH.

The successful completion of the channel led to an expectation on the part of the AKRSP that the Passu VO would take up land development promptly and complete it speedily; this did not happen. The villagers of Passu observed that the process of making a new channel operational for full discharge is a long process that may take 5-8 years and their observation has been borne out by the experiences of other mountain communities. AKRSP believes that the VO's collective management of land is hampered by discord within the VO and the inability to perceive the value of investing in a sustainable source of income from agriculture. It appears that most able-bodied

villagers prefer to work as trekking guides in the summer (at about Rs 110 per day, rather than investing labour or cash in land development. Moreover, Passu's land development, unlike Khaiber's, is an individual affair for each beneficiary household, even though the VO has taken a collective land development loan from AKRSP. The use of new land in Passu does, however, resemble that of Khaiber, in that tree (particularly fruit) crops appear to be preferred to annual crops.

Clearly, the residents of Passu are responding to new opportunities by seeking a balance between near-term prospects for cash income and the longer-term payoff to investment in land. In the short-term, there is a movement of labour and other resources away from agriculture and livestock. Kreutzmann (1985) observes that many of the huts in the alpine pastures inside the Passu *nullah* now lie vacant, as fewer people make the seasonal trek with their livestock to the pastures - the treks made today are with tourists, and for cash income. Thus, the glaciers and their surrounding scenery are being transformed into multiple-use resources, while prior to the KKH they were of importance only to agriculture and livestock.

The financial and entrepreneurial resources of the VO and its members are also subject to the strong dual pressures of competing agricultural and non-agricultural uses. For example, VO savings, normally reserved for investment in agriculture, were used to purchase stocks for an electrical goods' store to be operated by the VO for all the neighbouring villages that presently received power connections. Similarly, there appears to be a reluctance on the part of the VO to nominate villagers for training in specialized functions; most eligible candidates prefer non-farm employment. The case of the neglected VO para-veterinarian indicates, too, that the effect of competing demands on resources is magnified by the factionalism in the VO. On the other hand, the VO has responded with enthusiasm to the highly-profitable seed potato production programme introduced by UNDP/FAO and a commercial firm. In the short run, income from seed potatoes is estimated to equal the income from tourism in Passu. In the long term, both activities are liable to be associated with environmental problems (the potato programme because of sustainability and disease-resistance issues).

The changing patterns of incentives have placed increasing responsibility for farming on women. It is conceivable that specialization in labour over time could make women the farmers of the village, while their men folk take up more remunerative non-farm jobs. The importance of this transformation is appreciated by the VO and AKRSP, and a conscious attempt is made by both to channel motivational and other inputs to women.

By and large, there is evidence that both social and economic forces are responsible for the substantial difference between Khaiber and Passu. While Passu has much easier access to non-agricultural income, it is also more factional as a Village Organization. One consequence of the latter is that there is lack of clarity in the VO's medium-term perspective - the balance between traditional resource use and new opportunities has yet to be articulated by the VO and AKRSP. In particular, there is little recognition of the value of specialization in labour for managing the entire range of options available to the village.

### **Roshanabad-Sherabad**

This is a small village of about 20 households, lying on both sides of the KKH in Central Hunza, about 95 km from Gilgit Town. The village lies at an altitude of about 2,000 masl, and maize, the second crop, is used for fodder since it does not ripen as grain. The inhabitants speak Burushaski, the main language of Hunza, and belong to the Ismaili branch of Islam.

Documentation available on the village includes: Meghji and Saleem (1987) and Neseem (1986). The following organizations are active in Roshanabad-Sherabad; the Union Council of the LB&RD system; project committee for rural water supply under the Community. Basic Services Programme; and the VO and its women's group (and their smaller nursery and tractor committees). In addition, there is a school nearby and a hydro-electric power station that provides electricity to Central Hunza.

The Roshanabad-Sherabad VO has a strong and well-educated leader and is a close-knit organization. VO membership includes women who participate fully in all VO meetings. Thus, from its inception, the VO has been active in pursuing women's development activities with the same vigour as those for men. In particular, the women have been managing a multi-purpose nursery, defining the procedures for income-sharing from this new common asset; they have also taken up a number of appropriate technology devices, such as nut-crackers (for apricot kernels), fruit pulpers, etc. Given the same broad pressures for changing gender roles as those that prevail in Passu, Roshanabad-Sherabad seems to have accomplished more in preparing for change by involving women.

The PPI for this village was an irrigation channel. The VO also took out a loan at an early stage for a tractor. The purchase and operation of the tractor turned out to be a saga of unforeseen circumstances. These events were narrated by VO representatives at a conference of Village Organizations in Gilgit and drew applause from the audience for both humour and relevance. The story illustrates the tremendous institutional innovation and managerial capacity that is required for acquiring and maintaining non-traditional assets and technology.

The Roshanabad-Sherabad VO has, since its inception, tried to develop a complete cadre of specialists for the activities undertaken by the VO. It has, for instance, a marketing team, with individuals nominated for fruit and livestock marketing, and others trained in fruit processing and packaging. It also has groups of women working, by turn, on the nursery (this is also observed in Khaiber). Like Khaiber VO, therefore, Roshanabad-Sherabad appears to be moving towards specialization in labour and management.

In a formal sense, the VO is a leader in village planning. It regularly works out (and presents on flip charts) a five-year plan for village development. While the earlier emphasis was on AKRSP-sponsored programmes, the plan now shows education and civic components as well. The plan is fairly basic, in that it lays down targets for products to be marketed, land to be developed, etc. It does not, as yet, show the ways and means for achieving the targets. The planning exercise shows how a basic concept introduced by AKRSP (initially for land development planning) is being extended and redefined by the VO; it points to the possibilities for innovation in planning for village development.

### **Rahbat and its Neighbouring Villages**

Rahbat is located about 60 km from Gilgit Town and about 5 km from the KKH in the Chalt Valley of Nagar Sub-division, at an altitude of about 1,800 masl. Chalt Valley, with a population of over 4,000 followers of the Shia branch of Islam, includes six villages with nine Village Organizations. While much of the development activity is carried out by individual VOs, issues of natural resource management have entailed cooperation among two or more of the VOs. Thus, it is important to discuss both village-level and supra-village innovations.

The cluster of villages in Chalt has particular significance because of the evolving situation in the Chalt-Chaprote *nullah*. Here, the community of resource users has intervened to take control

over the natural forest and pastures of Chalt-Chaprote. This development represents a test case that will challenge the ingenuity of AKRSP, the VOs, and the Government in dealing with the issue of community control of natural resources.

Documentation on Rahbat and the neighbouring villages includes the following references: CDS (1987); Gohar (n.d.); Gohar, Khan and Rahemtulla (n.d.); Hunzai (1987); and Jan (n.d.).

Rahbat Village has the following development organizations: a project committee set up under the LB&RD system; the Union Council of the LB&RD system; a project committee set up to implement the rural water supply project of the Community Basic Services' Programme; the AKRSP-sponsored VO, its affiliated women's group, the forest management committee set up by Rahbat and its neighbouring VOs; and the Aga Khan Education Services.

After visiting the Gilgit area in 1986, a team of workshop participants had recommended that "*AKRSP could make a valuable contribution by interceding with the Government to return these forests to the status of locally held commons, to be managed by an organization - complete with enforceable sanctions-established by AKRSP*" (Dani, Gibbs, and Bromley 1987). AKRSP's approach has been to act on institutional innovations once they appear to have the interest and confidence of the villagers. Thus, while AKRSP was waiting for villagers to establish a line of approach for new ways of managing natural resources, the villages of Chalt decided to intervene to protect and sustain their natural wealth.

Villagers who were interviewed (CDC 1987) estimated that the Chalt-Chaprote forest is now only one-fourth of what it was about 20 years ago. The rapid depletion of forest and pasture is due to the changes in incentives that started with the construction work on the KKH. This brought about significant increases in the value of forest products; grazing has been particularly damaging to juniper regeneration. There is no doubt that the changes have benefited those in the area who were engaged in the commercial exploitation of the forest; one estimate states that Rs 1.5-3.0 million was earned by about 200 households every year, equal, on average, to a reasonable wage for one man-year per household of non-farm employment.

In March 1986, the six VOs of the area, acting through 36 representatives, set up a Reform Committee for Forest Conservation. Although there are several activists in the group, perhaps the most influential is a former *numberdar* from Rahbat. The Committee declared an immediate ban on commercial exploitation and domestic requirements were to be met as follows:

- o only dead wood would be used for fuelwood, with each household permitted one trip to the forest every week; and
- o timber would be made available upon application to the Reform Committee which would verify the requirements and then apply to the Forest Department for approval.

A gate (or check point) was set up on the road out of the village and was manned 24 hours a day. The *chowkidars* at the gate were remunerated by collecting equal contributions from each household. Offenders were to be fined Rs 25 per *maund* (about 38 kg) of fuelwood and Rs 500 per log of timber. The ban and sanctions are reportedly being enforced effectively.

The ban on commercial exploitation of forest still left unresolved the conflict between livestock grazing and forest and pasture regeneration. In 1987, the VOs proposed a new system of rotation that would reduce the pressures of overgrazing. They also agreed to a suggestion from AKRSP that some new tracks be constructed, to open up hitherto inaccessible parts of the rangeland, and

that additional earthen tanks be built to provide water for livestock. The Rahbat VO has set up a five-person pasture development committee.

In response to the initiatives undertaken by the VOs, AKRSP is providing technical and financial assistance for sustainable forest management with community participation. This assistance is outlined in the documents prepared by AKRSP staff and listed above.

It is not yet clear how the fundamental question of authority between the Reform Committee and the Forest Department will be resolved. The Committee's intervention takes over some of the functions of the Forest Department on State-controlled forest. The villagers maintain that they are helping the Government enforce forest regulations and that they have the written permission of the former Deputy Commissioner to do so. The Head of the Forest Department maintains that the Committee is a refuge for 'miscreants' bent upon the destruction of forests for their own vested interests. It is believed, however, that the Forest Department is issuing no new permits for commercial exploitation of the Chalt-Chaprote forest.

The villages of Chalt have also undertaken several other supra-village initiatives. Rahbat *Bala* and Rahbat *Paeen* VOs are working together to construct a domestic water supply project as well as a girls' school. The school represents the first instance of cooperation between a non-Ismaili village and the Aga Khan Education Services in the provision of a complete package of educational facilities. Rahbat Bala also hires a *chowkidar* jointly with the Chaprote Paeen VO for the maintenance of their common irrigation channel.

An institutional innovation at the village level was observed in Chaprote village. This village had been gifted 10 high-yielding, hybrids by the Heifer Project, with the expectation that, as at Khaiber, the cows would be kept in a collectively-managed unit. The villagers of Chaprote, however, have distributed the cows to individual households who will share the costs and benefits. The reason given for this system was that it is too costly to pay cash to the attendants who were to look after the cows in the common livestock unit.

The Rahbat VO appears to be a leader, among Shia villages, in involving women in the development programmes available for the region. In addition to the girls' school mentioned above, Rahbat has a multi-purpose nursery of the kind present at Khaiber and Roshanabad-Sherabad. This nursery is expected to play a supportive role in plans for sustainable forest management in the Chalt-Chaprote forest.

Most of the VOs of the valley have a full range of village specialists trained by AKRSP. These specialists are likely to include forestry and pasture specialists in the future.

In conclusion, it appears that the villages of Chalt have embarked on a dramatic course of institution-building that may have relevance to many other villages in the region. The initiative by the community has placed both AKRSP and the Government in a challenging position. Whereas the Government needs to articulate a response to an apparent conflict of authority, AKRSP needs to strengthen community institutions with the technical and financial assistance needed to capitalize upon the community's initiative; and community intervention needs to be extended into a strategy for sustainable resource management at a high level of productivity.

## Rahimabad I

Rahimabad I is located along the KKH, about 30 km from Gilgit Town, at an altitude of about 1,670 masl. It has two VOs - *Bala* (upper) and *Paeen* (lower) - that are organized around separate *jamat khanas* (the religious gathering place for followers of the Ismaili branch of Islam); the combined population is 125 households, mostly from the Ismaili sect but also including a number of Shia families. Both sects are represented among the office-bearers of the VOs. Because of its proximity to Gilgit Town, Rahimabad I is part of a greater Gilgit economic zone supplying produce and manpower to the urban area on a daily basis.

Information on Rahimabad I is available in Hamid (1987); Khan (1985); Meghji (1984); Meghji, Tetlay, and Tejani (1987); and Semple (1986).

The following organizations are active in Rahimabad I in addition to its two VOs: the Union Council of the LB&RD system; the Ismailian Local Council; a cooperative society; and the Aga Khan Education Services. In addition, the village has a government school for boys; a school for girls managed by the Aga Khan Education Services; a government dispensary; and a government veterinary dispensary.

Rahimabad (original name Partab Singh Pura, subsequently Matum Dass) is one of the newer villages of Gilgit and thus there are people in the village (as in Oshikhandass) who can narrate the events leading up to the establishment of the village and the subsequent lengthy process of land development. According to these elders, the settlement of Rahimabad started with the construction of an irrigation channel in 1903. The construction of the channel is said to have been carried out, under the supervision of soldiers sent by Maharajah Partab Singh of Gilgit, as part of an agreement with Mir Nazim Khan of Hunza. The *Mir* sent 28 households from Hunza and their descendants inhabit the village today with those of the other original families. During the early stages of land development (1903-1920), the villagers brought fruit and forest trees from Hunza. Thereafter, they established fruit nurseries and obtained other tree cuttings locally.

Since 1903, the irrigation channel has been maintained with the help of a village *chowkidar*. In 1975, the then *chowkidar* applied to the VO for an increase in wages. The village agreed to increase the wages from 2 kg each of wheat and maize grain per household, per year, to 4 kg each of wheat and maize grain per household, per year, plus Rs 200 in cash from the village common fund. The revised wage rate also appears to be in effect today.

Rahimabad I was one of the first villages to form a VO after AKRSP's arrival. Its first PPI - that for the Paeen VO - was a link road, through the length of the village, connecting it at both ends with the KKH. From the very beginning, the issue of compensation for land taken up in road construction dominated discussions between AKRSP and the VO and among members of the VO. Some villagers maintained that AKRSP should follow the policy of the Northern Areas Public Works Department and pay land compensation at market rates, in addition to the cost of labour and material that is normally included in AKRSP cost estimates. AKRSP maintained that land compensation was an internal matter for the VO to resolve. It took 2-3 years for the issue to disappear from the agenda of meetings between AKRSP and the VO. The VO decided that no compensation would be paid, since those who bear the loss of land also benefit the most from the road by virtue of their proximity to the road. Many of the affected families appear to support this rationale. Thus, Rahimabad represents an example of a VO internalizing the costs and benefits of public good.

Rahimabad I also provides insight into traditional and new ways of discharging financial obligations in the village. Although the VOs of Rahimabad have taken out and repaid several

AKRSP loans, recovery of the first loan of Rs 6,534 for fertilizer was plagued by problems. Recovery of loans was then in the hands of the VO's model farmer who died suddenly before the loan could be repaid to AKRSP. Some villagers report that he had already collected about half the loan from individual VO members for repayment to AKRSP. The repayment of the loan was taken over by the late model farmer's nephew, as a matter of family honour; the nephew is the current manager of a VO. A meeting of village elders was called to discuss repayment; the elders decided that well-to-do families in the village should make donations towards erasing the loan, since many of the others were too poor to pay. The understanding was that the contributors would be repaid once a second PPI project (a channel for the Bala VO) was approved by AKRSP. Thus, eight villagers provided what is essentially bridge funding to the VO in anticipation of an improved cash flow for the VO later on. The second PPI project was approved after lengthy debate between AKRSP and the concerned VO. In the final analysis, some of the debtor VO members have paid off some of the contributors (to bridge finance) by selling produce for cash. It is not known with certainty whether the remaining amount has, in fact, been repaid out of the grant for the second PPI.

The *Bala* VO nominated two young men for training in para-veterinarian and plant protection functions. It was soon discovered that the para-vet was, in fact, redundant, since there is an Animal Husbandry dispensary in the village staffed by a properly-trained employee from the village. Contrary to the expectations of many outsiders, the dispensary appears to be well-stocked with necessary drugs and vaccines. The villagers understandably prefer the government dispensary to the VO specialist, since the Government provides free services while the VO charges for cost and the specialists's fee.

Rahimabad I is also one of the villages taking part in the Heifer Project. It has been successful, so far, in keeping the 10 cows together at one, collectively-managed, location. Furthermore, Rahimabad is in the process of developing what little land had been left undeveloped over the years. The pattern of land use on the new land favours tree crops, understandable in view of nearby markets for fruit and wood, and the diversion of labour to urban centres.

In retrospect, Rahimabad I has consistently chosen investment options that reinforce its position on the KKH close to Gilgit. Its first PPI was a link road; it preferred the government veterinarian to the more costly VO para-vet trained by AKRSP; at the same time, it accepted the high cost of upkeep of hybrid cattle in anticipation of later returns from milk marketing; and it has developed land for fruit and forest products that are in great demand locally and nearby. In retrospect, there is little an outsider could have done to improve upon the village's investment decisions in response to changing opportunities. At the same time, Rahimabad and Oshikhandass village represent possibly replicable approaches for agricultural development in other villages that are only now acquiring reliable and cheap access to sizeable markets.

### **Oshikhandass**

Oshikhandass is a large village with 540 households from the Shia and Ismaili sects. It was established in the late 1930s, when 58 families migrated to the location and constructed an irrigation channel under the patronage of the feudal chiefs of the time. The village is situated just south-east of Gilgit Town, about 1 km along a dirt truck road from the KKH, and its altitude is 1,400 masl. It is divided into three neighbourhoods (*patees*) that correspond to the ancestral domiciles of the present inhabitants. The neighborhoods are called Jagir Patee, Bulchi Patee, and Farfoo Patee; each *patee* has its own VO, and there are also overlapping women's organizations.

References to Oshikhandas may be found in: Caroe (1986); CDC (1987); Conway et al. (1985); and Meghji (1984).

Oshikhandass has the following organizations in addition to its AKRSP-sponsored organizations: the Union Council of the LB&RD system; the Aga Khan Education Services; the Literacy and Mass Education Commission of the Government; three cooperative societies (including one trading in timber); the Ismailia Local Council; the Shia association; and a *numberdar* system from the days of the *Mirs*.

The original 58 families that settled in Oshikhandass were each given 3 hectares of land to develop. (They were not, however, given any share in the rights to the nearby *nullah*, as older villages had prior claim to it.) Additional land was brought under cultivation subsequently. Available information indicates the following rates of change over the last 50 years:

Total cultivated land	2.75% per annum: 275% over 50 years
Population	4.56% per annum: 831% over 50 years
Land/household	1.82% per annum: 58% over 50 years

Subjected to the pressures of in-migration and nearby urbanization, and existing without a natural forest or pasture of its own, Oshikhandass has responded by creating a resource base that is a model for many other villages in a similar position.

Since the very establishment of the village, its residents undertook a substantial programme of forestry inter-cropping with lucerne, as they had no other natural source of fuelwood, timber, and fodder. They planted trees on the slopes behind the village, as well as within the homestead. The village is today a remarkable example of forestry management in the village agroecosystem. It is estimated that 80% of the village's cash income now comes from forest products, almost all of it from individual holdings.

While livestock holdings are small, the village is attempting to improve the quality, quantity, and marketing of fruit, vegetables, poultry, and eggs for sale to the Gilgit urban market. Some of this is being accomplished through the Village Organizations of Oshikhandass as well as its women's organization.

The Oshikhandass Village Organization (which later split into three VOs) was one of the first two or three sponsored by AKRSP. It suffered, therefore, from a certain lack of knowledge about the intentions and approach of the management of AKRSP; the villagers simply extrapolated from their knowledge of the other agencies working in the district and paid little attention to the spirit of the AKRSP message. For example, dialogues with AKRSP staff were initially valued more for their recreational content than for discussing development problems and solutions. VO office-bearers were chosen by lottery! Few meetings were held, and the attendance was very thin. The implementation of the PPI project - a sedimentation tank - was ignored by the vast majority of the villagers and work was handed over to a committee; the project suffered from faulty implementation and was finally completed three years after it should have been. As a large and urbanizing village, Oshikhandass has found little in the AKRSP package to interest the majority of its residents.

In turn, development agencies have done little so far to develop a menu of programmes from which villages like Oshikhandass and Passu could choose major initiatives in high-value horticulture, forestry, and agro-based industry (such as wood products including furniture for the local market). In other words, there is a need to discover linkages between the kind of agricultural production model that AKRSP is trying to articulate, as a follow-up to its institutional model, and a rural-based model of small enterprise.

## Sherqilla

Sherqilla, like Oshikhandass, is a large village (of about 500 households- with three VOs and a women's organization. Sherqilla lies on a jeep track, about 40 km from Gilgit Town; it takes two hours to complete the journey from Gilgit to Sherqilla. The jeep track is now being widened and improved to take trucks and buses.

Sherqilla is inhabited mostly by followers of the Ismaili sect and a handful of Sunni families. The village was the seat of the former Rajah of Punyal who still lives in Sherqilla. It is located at an altitude of about 1,830 masl and there are years in which the second crop (maize) does not ripen.

The following organizations are active in Sherqilla; the Union Council of the LB&RD system; project committees for LB&RD activities; Aga Khan Education Services; Aga Khan Health Services; three Village Organizations and their women's groups; the Ismailian Local Council; and four cooperative societies. In addition, there is an animal husbandry dispensary managed by the Government; government and Aga Khan school; and a hydro-electric power station to supply electricity to Sherqilla and a neighbouring village.

The PPI project in Sherqilla was an irrigation channel. This channel was constructed by what was then the combined VO of Sherqilla. Since it was not easy for a large village to congregate regularly in one place for VO meetings, the villagers decided to divide into three VOs, based on neighbourhoods (each with its own *jamat khana*). This division took place soon after the completion of the channel. At the time of division, the financial assets of the old VO were also divided by common consent.

Soon after the channel project was completed, the three VOs applied for land development loans. They were the first VOs to receive such loans from AKRSP and helped establish AKRSP policy on land development loans. It was observed that the channel was irrigating unequal land holdings within the settled village. One option was to give out the loan in proportion to the landholdings. The option chosen by AKRSP was to give a fixed amount of Rs. 2,000 to every household, on the grounds that this policy represented an equitable sharing of a rationed financial resource (i.e. subsidized credit). Accordingly, every household in Sherqilla received Rs 2,000 in medium-term credit in December 1984. It has been estimated that the actual land development cost has substantially exceeded the amount loaned out by AKRSP; the difference has been provided by individuals through direct or hired labour.

Sherqilla is, in many ways, a microcosm of the evolving situation in Gilgit. One can observe those who have too much land relative to family labour selling undeveloped land to migrants from higher up the valley; new migrants with little or no land creating a local market for grain, pulses, fodder, and dairy products; the landless and other poor working in the village on land development and haulage for wages; those with donkeys specializing in bringing fuelwood down from the forest; female education creating changing expectations among people of all generations; and the prospect of improved road transport generating expectations of bigger marketing efforts and higher cash incomes; and so on.

One consequence of change is in perceptions of livestock profitability. Those households whose men are involved in non-farm work are selling off their goats and sheep and retaining cows that can be managed by the women at home. Some households contract out livestock care to professional shepherds (*gujars*), but the cost of that option also seems to be rising. The practice in the past was that the *gujar* family would retain the butter and milk produced from the livestock; the situation now is that *gujars* ask for about 4 kg of wheat grain and Rs 10 in cash for each goat or sheep for a five-month period.

Sherqilla was the first village in which the women organized themselves along the lines of the VO. This happened in June 1983, only four months after the first VOs had been formed in Gilgit. It is important to note that Sherqilla has a 'model school' for girls managed by the Aga Khan Education Services (AKES). Almost all the teachers in the school came from other districts of Pakistan, mostly Karachi, and this might have influenced both men's and women's thinking in Sherqilla. From the very beginning, men and women collaborated in managing income-generating projects; the men being particularly useful in purchasing inputs and marketing in a society where women cannot go to markets outside the village.

In addition to the Village Organizations in Sherqilla, the village had four cooperative societies functioning in 1985 (Hussein 1985). These societies had memberships of 37, 42, 106 and 500 individuals. Together, they had equity and share capital of Rs 600,000; this compared with Rs 111,000 saved by the three Village Organizations by mid-1985. In comparison, the land development loans, provided to the three VOs by AKRSP, totalled Rs 764,000 - slightly more than the amount saved by villagers in all their cooperative bank accounts.

Of the four cooperatives in Sherqilla, two appear to be multi-purpose societies. One is for agricultural development and the fourth is a transport society. Many of the investments of these cooperatives have been in non-agricultural activities, particularly consumer shops. Most of these efforts, however, have led to financial loss.

In some cases, these cooperatives have taken out loans from the Federal Bank for Cooperatives at 9 per cent per annum, and reloaned the money to individual members at 12 per cent. The repayment record of the village as a whole is unblemished (Hussein 1985). One way in which the village effects timely repayments is by borrowing from one cooperative to pay off the other's loan. Since cooperative profits are shared by all members, villagers are also particular in repaying their individual obligations to the cooperative. Another incentive for prompt repayment is the significant interest rate of 12 per cent charged by the cooperatives-villagers are well aware that outstanding amounts are subject to this rate of interest.

Thus, Sherqilla shows a considerable variety of institutional and financial mechanisms for income-generation and market exchange. It appears to have initiated the transition from a subsistence to commercial economy before AKRSP's arrival. The following points are worth noting:

1. The villagers had started to apply the spirit of their traditional cooperation to the evolving market economy, even before AKRSP arrived on the scene. Most of the cooperative activity, however, seems to have been for the benefit of a minority of the households.
2. While Villagers perceived the benefit of investing in non-agricultural activities, these ran at a loss. This would suggest that; (i) although villagers may have the financial assets to invest in non-farm activities, they do not yet have the expertise to be entrepreneurs outside the farm economy or (ii) the organizational forms chosen by them (i.e. the cooperatives) to raise capital (through equity and concessional capital) may not be appropriate for the management of non-farm enterprises.
3. Villagers demonstrated the potential for undertaking new income-generating activities for women by building upon the traditional gender-division of tasks. Women's awareness of their collective income-generation potential might have been heightened by their socialization with women from outside the village.
4. The response to AKRSP's insistence on collective management may have been conditioned by the presence of alternative opportunities for income-generation available to the villagers of Sherqilla.

## Thingdass

Thingdass is a hamlet-offshoot of Singal village; the headquarters of the Punyal-Ishkoman Sub-division. It lies at an altitude of about 2,000 masl, some 55 km from Gilgit Town along a dirt jeep-track. It has 42 households belonging to the Ismaili sect. References on Thingdass include: Khan (n.d.); Sakhi (1987); and Semple (1986). Organizations active in Thingdass include the Union Council of the LB&RD system; Aga Khan Education Services; Aga Khan Health Services; the Ismailian Local Council; and the VO and its women's group.

Thingdass was established by a relative of the *Rajah* of Punyal but soon attracted other residents who were given the right to develop the land not given by the *Rajah* to his relative. Whereas the *Rajah's* relative had commissioned the first irrigation channel, subsequent settlers extended the irrigation in the village. Now, irrigation and land are subject to the same rules and conventions that operate on such communal assets in other villages; these resources are no longer considered private property.

Thingdass and Singal, together with a neighbouring village (Gich) have access to one of the largest *nullahs* in the district. This *nullah*, however, has been subject to the same kind of overexploitation and depletion that has afflicted other such resources. It is under the control of the Forest Department. Fuelwood and timber collection has become increasingly expensive in the face of longer distances to travel and rising time costs. In response, villagers in Thingdass are planting woodlots within the settled village. Rising time costs and the availability of market substitutes have also led villagers to abandon the cultivation of barley and potatoes in the lower reaches of the *nullah*. Thus, like so many villages with access to non-farm employment and markets, Thingdass is moving away from pastoralism. Virtually none of the men now take their livestock up to the pastures, and there is no longer a rota system to perform that function. The pastures are used by *gujars* who bring their herds from other villages. It is reported that these *gujars* pay toll for the use of the pasture, at the time of the return migration from the pasture, and that this fee is collected by the *numberdars* and divided equally among all households.

Thingdass and its parent village Singal are subject to the constant threat of mud-flows destroying their channels in mid-season. This represents a substantial risk to agricultural production in both villages. It is not surprising, therefore, that the two villages have an arrangement under which each provides labour to the other in times of emergency. Pooling labour in this manner provides insurance against massive crop failure due to lack of water for irrigation. Villagers report that, in the last ten years, Thingdass has called upon its neighbours three times and repaid the obligation four times. Villagers also remember a mud-flow that required the services of 900 men for three days; meaning that they mobilized more labour than was required for the entire PPI project (an irrigation channel).

The PPI for Thingdass was the extension and widening of an existing irrigation channel. A previous attempt at this, financed by the LB&RD Department, had failed because of poor alignment. The piers left behind from that attempt were utilized in the AKRSP-sponsored project. Since the completion of the channel, the VO has taken a land development loan from AKRSP. More than half the new land is to be planted with forest trees.

All the VO specialists in Thingdass are active. The plant protection specialist has worked recently in collaboration with the Government's Department of Agriculture. Thingdass also is home to 10 of the hybrids introduced as part of the Heifer Project.