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FIFTY YEARS OF RESEARCH ON PASTORALISM AND DEVELOPMENT

Editor **Ian Scoones**

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GENDER AND LIVELIHOODS IN NORTHERN PAKISTAN

Susan Joekes

1 INTRODUCTION[1]

This article reports on research done in 1993-94 in the Hunza and Nagar districts in the Karakorum mountains in the Northern Areas of Pakistan[2]. It was designed to explore whether increasing demands on women's labour inputs in an ecologically stressed area undergoing population growth might be prejudicing sustainable use of natural resources and, further, whether project interventions that succeeded in delivering resources to women might, by relieving their time constraints, contribute to environmental sustainability as a result. A study in Nepal had convincingly demonstrated that in a comparable (though not exactly similar) environment, resource degradation was leading women to take short cuts in cultivation methods that were undermining the maintenence of soil fertility under traditional cultivation methods (Kumar and Hotchkiss 1988). If a similar situation obtained in Northern Pakistan, more attention to gender analysis of production systems in ecologically fragile areas, and the direction of more resources specifically to women, might be generally warranted on environmental grounds.

As it turns out, women in Hunza and Nagar do not face a binding constraint on their time, even though labour demands on them are very heavy and have increased in recent years as the agro-ecological and broader livelihood systems of their communities have undergone rapid and intense change. The way in which such a situation had been avoided reveals much about the nature of the relationship between women and environmental resources. It is also clear that the women-directed projects supported by a local NGO were successful by several criteria, including sustainability of local resource use, but that their prime value, as women themselves perceived it, and the reason for their successful implementation, related to gender rather than to productivity concerns.

2 BACKGROUND

2.1 The local ecology

Initial conditions are unfavourable to agriculture in the Northern Areas. Hunza and Nagar districts are situated in the high, geologically young Karakorum Mountains. At altitudes where year round habitation is possible (up to 3-4,000m), rainfall is too low (150-200mm p.a.) for cultivation, although at higher levels precipitation, largely in the form of snow, is sufficient to support some vegetation in high alpine pastures and small juniper and spruce forest.

Soils are very poor and have little moisture retention capacity, partly due to the geomorphology of the region, and partly to the aridity and consequent lack of spontaneous vegetation. Repeated application of organic matter is necessary to improve soil structure. Population settlement is heavily concentrated in steep river valleys, where plots are very small (typically less than two hectares per household); the population has been growing rapidly in recent years, at an estimated rate of 3-4 per cent p.a.(World Bank 1987).

The land use system that people have evolved to cope with these conditions is agro-pastoralist and, vertically diversified to take advantage of a series of differentiated ecological niches (Mahmood *et al* 1992). Even so, it supports a very low standard of living.

Cultivation takes place only at lower altitudes near the settlements, and is of cereals (wheat, maize and/or barley depending on altitude) fruit and nuts (apricot - for which Hunza is renowned, apple, pear, cherry, walnut), and vegetables (potato, carrots and leafy green vegetables). These crops are entirely dependent on irrigation water collected in single long channels (often many kilometres long) from glacial snouts. The variability of glacial melt as a source and the existence of a limited network of

[1] This research was carried out with funding from the Overseas Development Administration through its Links Between Population and Environment Research Programme.

[2] Special thanks are due to Judy Pointing who had charge of field arrangements for the study and who helped shape the ideas reported here; I would also like to thank Cathy Green and Julie Lawson for comments on this paper.

branch channels within villages mean that particular fields receive water infrequently. Water stress to plants is common. On top of this, the main channels are frequently cut and water lost because of damage caused by landslips, avalanches and mudslides, especially during spring when the water is most needed. Flat land is scarce and most fields are created by clearing the surface of boulders and stones and making drystone wall terracing.

Both small stock (sheep and goats) and large stock (cattle, yak and cattle-yak crosses) are kept. They are fed from different kinds of supply at different altitudes. Small stock tend to stay in the vicinity of the village for free or tethered grazing, but most other animals are traditionally taken by specialist shepherds far away to the highest pastures for the summer months and brought down for stall feeding through the harsh winter. The very largest (yak and crosses) may remain in the rangelands all year round. The manure that livestock provide is so valuable that a 1930s visitor's account records that not only was manure brought down the mountains to the fields to add to that from the winter stalls (as is still the case), but that the high pastures were actually swept for droppings (Lorimer cited in Lawson 1993).

2.2 Natural resource management

Local natural resource management institutions are intricate and complex. The high pastures are common property, with each pasture area designated to particular village(s). So too are the high forests, though they used to be controlled by the local rulers (*mirs*) who had limited local autonomy from the government of Pakistan. The mirdoms were abolished in 1972/73, leaving an administrative interregnum which had dire consequencies for forest management. It allowed overcutting to take place for an extended period for commercial sale down-country as well as for local domestic use. The area under large trees has been drastically dimished as a result.

Water, the key resource for cultivation, is under communal (male) management. Allocative rules for irrigation water exist, based on *baradari* ('brotherhood' or clan) membership, a family's historical date of arrival in the settlement and the cropping pattern. Guards distribute the water and may patrol the channels by night; if offenders divert water they are fined and the penalty monies are used to pay the guards and keep the channels in good repair (though the bulk of labour for maintenance operations is supplied by all participating households without remuneration). In many villages large collection tanks have been constructed, which are filled from the main channel overnight and then emptied to allow easier secondary distribution of water (from the tank) in daylight.

Cultivated land is under private ownership. Almost all households have land, although most holdings are small. The average size is approximately two hectare per household, of which 35 per cent is cultivated; in 1983 the cropped area was estimated at 0.075 hectares per person equivalent (Lawson 1993). Land titles are vested in males only.

Land titling now tends to cover areas immediately surrounding the village, which may be cultivated in due course if labour is available for land clearing and terracing and if irrigation capacity is expanded. Communal use rights to this land are recognized in the interim, for small stock grazing and collection of fodder and brushwood for fencing and fuel.

2.3 The gender division of labour

The gender division of labour reserves certain tasks to one or other gender. For instance, ploughing is an exclusively male task. Traditionally, women had full responsibility for fuelwood collection whether from private or common property land. A large number of tasks are, however, shared, particularly in agriculture. Thus manuring, sowing, field irrigation, harvesting and threshing are all carried out by men and women separately at different times or together. Some tasks are carried out by different means by the two genders, e.g. manure is carried to the fields by men using donkeys, whereas women carry it in baskets on their backs. This suggests a broader pattern of differential access to productive resources. In terms of crops, there is specialization only to the extent that growing vegetables (apart from potatoes) is done predominantly by women. Otherwise, both genders are involved in some way in production of all the main cereal and fruit crops.

Specialization is more marked in other aspects of the agro-economy. All domestic work and cooking is done by women, and most handicraft production (e.g. embroidery of the caps worn by women, although men weave woollen cloth used for making hats and coats). The work involved in livestock rearing is strongly demarcated. Women take responsibility for stall feeding and care of small livestock and poultry; children often assist by taking charge of grazing small animals in the

vicinity of the settlements. Men, on the other hand, mainly but not only specialist shepherds among them, take the large animals up to the high alpine pastures and live there with the herds for the summer months. Women are never involved in long range pasturing in this area. Milking at the homestead is usually done by women, whereas, of necessity, when it is done in the high pasture it is done by men. There is an intriguing gender distinction in end-use of certain products: for instance, traditionally, cow's milk is reserved for women, goat's milk for men.

Men also have total charge of construction and structural repairs of irrigation channels and branch distributories. In cases of emergency, women may act to staunch a potential breach in a branch side wall, for example, but this is exceptional.

This system of gender division of labour, with only male labour used on certain key works, remains viable even though historically there has always been some male out-migration. With respect to irrigation, construction and major repair works are essentially lumpy; so that they can be carried out whenever during the warmer months sufficient numbers of men are available. In any event, for these and other tasks, an elaborate system of labour mobilization exists, whereby from time to time a levee of a certain number of days male labour contribution is required of every household in the village. (Households without an able bodied male member are exempt, and others who for one reason or another cannot comply make a financial contribution instead.) This labour gang is set to work wherever necessary on the irrigation system supplying the village. This is complemented by a smaller-scale reciprocity in labour supply between households for carrying out ploughing. The third reason why the system of gender division of labour persists in the face of heavy out-migration is that households use remittances to hire in male wage labour as necessary to carry out seasonally specific tasks as they fall due.

3 PARAMETRIC CHANGES

The Northern Areas have seen two important parametric changes within the past twenty years which have radically affected the livelihood system. The first was the opening in 1978 of the Karakorum Highway (KKH), the first metalled all-weather road in the area, which linked it year round to other regions of Pakistan. Transport costs for produce to the major markets in Rawalpindi and further south were approximately halved when it opened (Lawson 1993).

The other major change was the establishment in the early 1980s of the Aga Khan Rural Support Programme (AKRSP), an NGO affiliated to the international Aga Khan Foundation. The AKRSP is a rural community-institution building NGO which has been extremely successful in galvanizing local communities to mobilize labour (remunerated at below-market wage rates by AKRSP) and savings to match those supplied by the AKRSP itself in three types of infrastructural project: construction of new irrigation facilities, bridges, and link roads to KKH. Investment projects only went ahead where the community reached consensus in choosing which project to implement. AKSRP's activities have over time expanded into other areas, mainly agricultural and livestock extension and tree nursery, seed and other inputs supplies, and produce marketing services.

The institutional framework for AKRSP operations are Village Organizations (VOs), which aim to be a forum for community decision making and information exchange. Later, in response to requests from women who felt VOs failed to meet their needs (despite the fact that VO membership did not exclude women), AKRSP sponsored the formation of Women's Organizations (WOs) in many villages. The VOs and WOs also provide savings and loan facilities for members. Over the ten years or so of AKRSP operations many VOs have accumulated major savings funds of several thousands of dollars in individual accounts, used as security against loans. WOs have also built up funds but in much smaller amounts.

4 ADAPTIVE LIVELIHOOD CHANGES

These parametric factors have led to marked and rapid adaptive changes in the livelihood pattern of the population in Gilgit in the recent period. These changes have been remarkably successful in the sense that household incomes nearly doubled over the period 1983-92, according to a recent survey (Bhatti 1992).

In agriculture, productivity has increased steadily without (yet) compromising soil fertility:

- AKRSP irrigation projects have led to an increase in the cultivated area by six per cent and another nine per cent will become cultivable after land clearing

and development (Bhatti 1992, from which all subsequent evidence in this section is also drawn);

- cropping intensity (excluding pasture) rose from 132 per cent in 1983 to 160 per cent in 1992 in Gilgit, reflecting increased incidence of double cropping at lower altitudes;

- there has been a shortening of fallow, such that land use intensity rose from 73 per cent in 1983 to 95 per cent in 1992;

- the cropping pattern changed away from cereals towards higher value potatoes, fodder crops and vegetables;

- chemical fertiliser use rose from 54 per cent of farms in 1983 to 84 per cent of farms in 1992;

- new varieties of wheat, maize, apples and potatoes have significantly increased yields;

- the stock of trees has increased dramatically: the average number of trees per farm has risen between 1982 and 1992 from 32 to 58 in the case of fruit trees and from 67 to 277 of 'forest' or 'wild' trees (poplar, willow, etc.) for poles, fodder, and so on.

As regards livestock production, the Livestock Censuses of the Gilgit district indicated a doubling of the total herd between 1976-86. The intermediate collective pastures have been severely overgrazed as a result, although the highest alpine meadows are still in good condition (AKRSP 1985). Village data suggest that animal holdings per farm are now being reduced in the lower villages and that the practice of stall feeding is spreading rapidly.

The improvement in transport and communications brought by the KKH has affected local livelihood strategies in various ways. First, it has allowed the valorization of much greater amounts of produce through sale in wholesale markets in Gilgit town. Second, the road has greatly increased tourism to the area. This is particularly relevant to women, as will be seen, because local hotels are an important source of demand for certain local products. This has diversified the local economy and sources of income, by improving the viability of local shops, hotels and restaurants, construction and transportation services, all of which have brought new job and income earning opportunities for the local population.

Improved transport may also have made out-migration from the area easier. According to a recent survey, 39 per cent of household income is derived from off-farm sources, including but not limited to migrants' remittances (Bhatti 1992). Migration has always been an important and necessary outlet for the (male) population of Gilgit, but at village level the perception is that men's participation in employment both off-farm and downcountry has been rising.

Another related element in the livelihood strategy is a strong new interest in investment in education as the key to relatively higher paying jobs of this kind locally and downcountry. There has been an upsurge in community built and managed schools. Although a number of factors are no doubt at work in the communities' adoption of education, the economic dimension is explicit. Investment in a child's education is compared favourably with the purchase of land, which is becoming established with the emergence of open markets in land and housing in some of the villages closest to the KKH. The returns expected are clearly linked to enhanced income prospects for an educated child. Interestingly, awareness that this calculus can apply for girls as well as boys is held locally to be an important reason for the rapidly increasing enrolment of girls in school. The schools, the Aga Khan health service (AKHS) and AKRSP itself are recruiting educated women onto their staff in ever increasing numbers.

5 CHANGES FOR WOMEN

Access to education for girls in this area, albeit limited, is only one new factor in the changing livelihood situation for women. There have been marked changes in the complement of tasks they undertake, with an increase in their overall workload and in the relative work burdens borne by women of different ages. Women's relation to the cash economy is also beginning to be established.

The intensification of agriculture at minimal levels of mechanization is likely to have required increased labour inputs per unit of land (though whether proportionately to increased population or not is not known). The year round increase in stall feeding of animals undertaken by women has also greatly added to their total workloads in the production of fodder (cultivation and/or collection of wild leaves). This can be seen as a compensation for the reduction in children's labour time, as educational enrolments

have risen. It is not surprising, therefore, to find that women's total workloads have on balance increased (according to both their own and men's accounts). Women themselves say that they accept the increased demands on them willingly in exchange for the higher standard of living that communities now enjoy, generated (as they see it) by male cash-earning activities. Women have taken over many more of the tasks in agriculture; the only accommodating factor is that they put in less labour time than before for woodfuel collection.

Changes to men's work pattern have involved withdrawal from much agricultural work, assumption of a larger part of the work of woodfuel collection and engagement in a new set of activities related to the money economy. Men's total workload may also have increased, but this is not known; without this information, it is not possible to say whether the increased workload borne by women has been disproportionate. Village time-use data show that there is no strong imbalance in the total workloads of men and women respectively. Women do not get less sleep than men, nor is their total non-work time less (including housework etc. as work), although distributed differently, with women praying much more and men declaring chunks of 'waiting' time (usually for meals). One district-wide time use survey estimate of the total labour input by women in Gilgit gave a figure of approximately 290 x 10hr days worked per year (Bhatti 1992).

While this is below absolute physiological capacity, in some sense, it is a much higher workload than the estimate for the neighbouring, poorer district of Baltistan (220 days). Evidence that it does not amount to a binding time constraint comes from experience of one AKRSP initiative. In the later 1980s, AKRSP tried to introduce apricot kernel cracking machines, on the assumption that this was an effective labour saving device that would relieve women of one of their most demanding tasks (since the cracking was otherwise done manually). There were some minor technical problems with the machine, but the women themselves had not been pressing AKRSP to supply labour saving machinery for this or any other task, and the effort was suspended for lack of interest on the part of the recipients.

The increase in women's agricultural workload is attributable to two main causes. On the one hand, it has involved a straightforward increase in the quantity of 'female' crops grown, such as fodder and vegetables. But there has also been a considerable reallocation of work between the genders, in the sense that many tasks that were previously all-male are now shared by men and women or are carried out by women alone. There has also been a changing **age** division of labour among women, with an intergenerational shift in demands for labour as between children - much of whose previous labour contribution, especially in grazing livestock, is precluded by school attendance - and older women. Village level data makes it very clear that the life cycle labour pattern for women has changed radically, and that women now continue to be heavily involved in production right up to old age until they become infirm. Men, on the other hand, assume an increasingly sedentary dignity as they age, however physically capable they may be.

The most striking discontinuity in labour patterns, however, is associated with changes in the management of forest resources and woodfuel collection. In the past few years, some village councils have acted to protect their depleted forest resources. On analogy (it would seem) to practices in irrigation, collective management systems have been put in place. Cutting quotas for different uses have been decided and cutting restrictions imposed (e.g. prohibition of cutting for sale of wood outside of the village). The new rules are actively monitored and sanctions applied in the form of heavy fines if they are contravened[3]. These new arrangements have obviously been facilitated by the great increase, noted above, in local tree planting on private lands (which the AKRSP was largely responsible for).

With the change in institutional arrangements came a drastic revision of the gender division of labour in this domain. With the depletion of the forest, the margin had shrunk further and further away from the villages, higher and higher up the steep slopes. Accordingly the task of gathering wood became increasingly arduous and physically dangerous. Under the new rules, women were no longer required to collect fuelwood from the high forest. It has become entirely a male responsibility (and also one

[3] These arrangements have been arrived at independently at village council level, using traditional institutional forums, not under the auspices of AKRSP.

that will in time become easier to fulfil, as the planted trees yield kindling, fuelwood and timber and the original forest is regenerated). Although it is not possible to quantify the amount of women's labour time freed up by this change, it was clearly considerable. The relief it gave was much remarked on by women themselves.

6 ASSESSMENT OF WOMEN'S RELATIONSHIP WITH ENVIRONMENTAL RESOURCES

Changes in livelihood and labour patterns in the Northern Areas can be related to the main arguments about the special relation between women and environment developed in the women, environment, development (WED) literature. These can be summarized as a concern with the spiritual primacy of women's relation with natural resources; a conviction that women's role as the main managers of natural resources (as 'hewers of wood and drawers of water' etc.) make them particularly vulnerable to environmental stress; and as an abstraction from the social context, specifically neglect of any possible causal links between gender relations and processes of environmental change. The richest interpretation of the situation, and the one most espoused by women themselves, gives primacy to the dynamics of interaction between gender relations and the livelihood system, which includes - but goes well beyond - management of the environmental resource base. Women do not view themselves as an isolated social group, but are deeply concerned about the relational aspects of their daily lives and about the totality of the livelihood base.

The special spiritual affinity argument: there is little substance to this idea in the Northern Areas agro-ecological system. This is **not** to say that the spiritual dimension in the human relationship to the environment is lacking - far from it. The people of the Northern Areas hold to a complex set of cosmological beliefs relating to their physical surroundings, alongside their adherence to Islam (Mumtaz and Fatima 1992). Both men and women have standing within this framework, which, in common with almost all religious systems, has a strongly anthromorphic character. In fact, in parallel with human society, the Northern Areas cosmology confers clear primacy on males rather than females.

Supernatural forces are believed to inhabit the mountains, alongside the human population. In parallel with the human world, these forces are gendered: and feminine forces or spirits are overtly and unambiguously conceived of as subordinate to masculine. Male spirits are pure, benevolent and inhabit high altitudes; female spirits are on the lower slopes, malign and polluting. The supreme being is a male figurehead, who is secondary only to the angels.

This belief system carries over to conceptions of appropriateness for human activity. There is a straight forward conception of the highest mountain areas as a male domain; hence, the exclusivity of herding by males in the highest pastures. And goats, as particularly sprightly, climbing animals, are felt to have special affinity with men – hence, the identification of goat's milk as male food. In terms of the evolution of resource management patterns, this ideological imperative was strong grounds for reducing and eventually eliminating women's role in gathering wood from the high forested areas. Cosmological rectitude proved a more powerful force than maintenance of a particular allocation of tasks by gender and absolute adherence to the principle of household provisioning (in the supply of fuelwood) as a female responsibility.

Two other observations are in order in this connection. The argument that women have a privileged spiritual proximity to nature carries an implication that women have a special depth and breadth of knowledge about the properties of natural resources. In these communities, however, while possession of special environmental knowledge among some groups of the population is recognized, it does not follow gender lines *per se*, but rather seniority and resource use practices (although these are of course divided by gender). Thus, elderly women are acknowledged as the single most knowledgeable people because they have the greatest experience in dealing with natural resources, both over time (given that they do not 'retire' from work as men do), and over a wider range of tasks in the agro-pastoral economy.

Even so, their field knowledge of the properties of plants does not go beyond what is **necessary** to the particular tasks that women carry out or the uses they put resources to. Thus, for example, while prolifically knowledgeable about properties and uses of trees and plants that yield fodder, raw material for baskets, medicinal leaves etc., women are not familiar with the varied cultivation requirements of different species: tree planting and nurturing is a male task. Women (and men) learn what they need to

know, which depends on their practical relation to the resource concerned within the terms of the local gender division of labour. In other settings, the vast knowledge which women have of different natural resources, of which the literature gives ample evidence, can be similarly interpreted as a consequence of practical need rather than any spiritual correspondence or quintessential intimacy.

Women as natural resource managers: Much of the 1980s 'women and environment' literature, which informed the first wave of attempts at gender awareness in project interventions, assumed that the welfare impact on resource dependent populations of environmental degradation would fall disproportionately on women. This contains at least two assumptions whose generality is questionable. First is the assumption that deforestation and water scarcity, whose exploitation falls within women's provisioning responsibilities, are the main forms of environmental stress. This **may** in fact hold up as a broad generalization worldwide. Depletion of tropical rainforest is one of the best documented types of environmental degradation, and far greater numbers of people are affected by the loss of tree cover in other locations, which is often causally associated with a range of other problems, such as soil erosion and loss of soil fertility. Failures in water supply and water quality problems may very well often be the most pressing issue at the local level, with ramifications in many aspects of life. But the importance of these problems relative to other forms of environmental stress in a given locality needs to be investigated case by case.

The second dubious assumption in the 'negative welfare impact' hypothesis is that the gender division of labour is fixed and immutable. The argument runs that changes in labour demand following changes in resource availabilities (e.g. of woodfuel) translate directly into increases in the labour demands placed on persons of the particular gender which carried out the relevant task in the baseline situation. In some situations fixity may obtain in the relevant period, so that such a direct carry-over does indeed take place. But in many others, including most obviously the case described in this paper, it does not.

There is an important distinction to be made here between the **fact** of division of labour along gender lines, and the existence of a **particular pattern** of division at any moment. As in so many other aspects of gender relations, the issue is to understand the dynamics of interaction; environmental stress often implies change in the livelihood context and this represents a compelling force for change in socioeconomic relations between different population groups, notably between the genders and among the generations. This case study represents a modification of the pattern which did not compromise the principle of gender division - in fact in some ways consolidated it. For instance, it implies a reaffirmation of spatial differentiation by gender, whereby women's sphere is kept less wide-ranging and closer to home than men's. (The great distances to the remaining forest stands were taking women further and further from the settlements.) It also confirmed the subordination of women, insofar as men's obligation to 'protect' women was called into play as another part of the justification to modify work patterns. Increased exposure to danger for women carried the connotation of increased vulnerability, for men, to the charge of failing to ensure a woman's safety (should she be injured in a fall, for example), and bringing shame upon him and his family as a result. Finally, it also, in material terms, implies a rewriting of common property resource use rights in men's favour. In the previous situation, women may have had at least some moral right to the returns from the forest, insofar as they had recognized rights of wood gathering for domestic purposes. But now it is clear that, should the forest be successfully regenerated, men's claim to the income from timber and non-timber products that may be produced from the forest - and is likely to be considerable, given the spread of monetary exchange - will be uncontested. Women may indeed normally have more equitable rights in common property than in privately owned resources (Agarwal 1992) but this case illustrates the fact that they are not sacrosanct but socially structured and may be under male control.

The proximate stimulus to and justification of the reallocation of the work of woodfuel collection was cosmological. Women were relieved of the task by male fiat; they accepted the change willingly, because the work was extremely hard and difficult. (Note that the arduousness of the work was not a salient factor in the reallocation.) Thus they clearly gained from the change. The converse does not necessarily apply to instances of extra work, which were also experienced. A negotiating process was involved in the allocation to women of extra work in agriculture and livestock production - not necessarily overt, but articulated in this way by women

themselves - whereby it was understood that an exchange was involved. Women were prepared to take on new tasks in order to make possible men's greater engagement in monetized activities and generate cash for making increased purchases of goods for family consumption. They saw this as a welfare trade-off rather than as something negative. **An exclusive focus on women in environmental relations:** An analysis of the effects of AKRSP's women-directed activities is illuminating in this connection. Women have held out for activities that benefited them at the same time as improving their position in relation to men; on the other hand, they had little interest in activities whose benefits, while also real, did not carry over in this way.

AKRSP has supported a number of special project activities for dissemination to women through the WOs, mostly in activities that fell within women's remit within the gender division of labour. Among them were the introduction of labour saving apricot kernel crushing machines, poultry programmes, fruit orchards and vegetable growing (not including potatoes, which are longer established in the area). In each case equipment, seed or young animals were supplied and current inputs were provided at cost and advice on production methods given.

In addition WOs, like VOs, provide financial services, setting up deposit taking schemes in individually denominated accounts. These savings then serve as security for the loan facility that AKRSP affords all VO/WO members.

For the purposes of this article we examine two types of activity: the provision of improved technology for a female specific task (apricot kernel crushing) versus support for new productive activities under women's control (poultry raising and vegetable growing). As noted, the first was tried out for a couple of years at the end of the 1980s but dropped for lack of support and interest. The second, by contrast, have been very successful. There has been a large increase in the poultry flock in Hunza and Nagar over the past ten years and large increases in the area laid to vegetables, especially in the higher altitude, single cropping villages (Bhatti 1992).

Both poultry and vegetable growing are beneficial to the agro-ecological system by adding to the supply of organic matter for soil improvement by way of poultry manure, green manure and fodder (from vegetable waste and residue).

Both poultry and vegetable production also help women meet their household provisioning obligations by significantly improving the quantity and quality of food intake for their families. Although some people deplore the diversification of the diet (particularly the reduction in the share of the hallowed fruit, apricot, in the total diet, though it remains very considerable), most recognize it as a nutritional improvement. The production of eggs is particularly valuable, for household incomes otherwise allow for only a low level of consumption of protein (in milk and milk products).

In narrow economic terms, vegetables in particular are highly profitable. They are less labour intensive than production of wheat, purchased inputs are less costly, and realized prices give a clear margin of advantage (in imputed financial terms, of the order of 15 per cent higher profit) (Bhatti 1992; Lockwood 1994). The share of vegetables in total farm production is a significant factor in explaining variations in household incomes (Bhatti 1992).

It may well be that, along these dimensions, poultry and vegetable production generates more immediate benefits than the mechanization of kernel crushing. That project ran into some technical problems with the devices, which were said to be awkward to use (World Bank 1987). There is no resistance to mechanization *per se* in these communities; new threshing machines are already widely used by men. Moreover, adoption of a labour saving device in a key task in the agricultural cycle (since apricot kernels are an important source of energy and of income) would have freed up labour time for more profitable activities and so hastened the increase in household incomes generally.

Such failed project experiences often conceal other issues. Problems of access as between households are sometimes at stake. In this case, however, the WO provided an equitable means of access, which in practice has not been strongly discriminatory within villages as between WO members and others. Nor did the crushing machines threaten to remove a rare opportunity for socialization among women (as is often found to be the case in introduction of pipe water schemes, for example). Women are not secluded in this region, they do a lot of socializing and often work in groups, carrying out cultivation tasks on different farms in sequence, rather than separately on their own plots.

On the other hand, women's resistance to the new technology makes sense in terms of the political economy of gender relations. The crucial feature of the activity was that, unlike poultry and vegetable production, it did not offer women any individual benefit within the gendered agro-ecological system. The savings in women's time that would have been won would have been redirected to increase total household income, which is subject to male control and discretion in expenditure. Poultry and vegetable production, by contrast, offered an avenue whereby women could for the first time control the proceeds themselves, because the products can be sold or bartered locally. Eggs and vegetables are bought for cash by local hotels and restaurants on the KKH and accepted in exchange for services (notably as payment of school fees to teachers). Other crops (wheat, maize, fresh or dried fruit, potatoes) are all sold in wholesale markets in Gilgit town, a journey of two hours or more away by truck. Women do not have access to distant marketing of this kind.

The availability of local outlets for disposal of produce and the existence of a 'sheltered home' for the cash revenues that the WO account represents allow them for the first time to express their expenditure priorities independently (e.g. to support education of a daughter) and to engage, as agriculturalists, in the money economy. All the forces in the system otherwise act for men to monopolize the community's interaction with the rapidly growing money economy. Women's assessment of their interests is clearly related to their position within the social relations of gender and to their need for access, alongside men, to the full array of livelihood options.

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