



The World Bank

Linking Small Farmers to Markets:

*Case Study on the Himalayan Action Research Center,
Uttaranchal, India*

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1. Introduction

Established as an NGO in 1988, the Himalayan Action Research Center (HARC) in India has been enabling hill communities in the Garhwal¹ region in the foothills of the Himalayas to move out of poverty. HARC views itself as a facilitator of sustainable development and its work is, therefore, focused on building the capacity of people to lead socio-economic change in their communities. This paper discusses HARC's model for organizing and linking small farmers to markets as well as its work in improving livelihood security for women in a challenging geographic environment.

1.1 Geographical and Social Context:

Uttaranchal, formerly part of the state of Uttar Pradesh, achieved statehood in 2000. Ten of Uttaranchal's 13 districts lie in the Greater and Lesser Himalayas, including Uttarkashi district where HARC operates. Uttaranchal is home to the highest Indian Himalayan peak of Nanda Devi as well as to the origins and routes of descent of the great Ganga and Yamuna rivers. The state of Himachal Pradesh borders Uttaranchal to the west, China to the north and Nepal to the east.²

HARC's achievements in linking farmers to markets are unique because of the difficult terrain in which it has to operate. Hills with steep slopes and fragile soils constitute over 92% of Uttaranchal's geographical area. According to the 2001 Census, the state's population is 8.4 million, of which 75% live in rural areas. The hilly regions have a larger share of population that is Below the Poverty Line, i.e. 38.5% vs. 26% in the plains. Further, Scheduled Castes (SCs) and Scheduled Tribes (STs) constitute over 63% of the state's population. SCs and STs in the Rawain Valley of Naugaon block in Uttarkashi district have been the main beneficiaries of HARC's work.

Though agriculture is the main livelihood of over 70% of Uttaranchal's population, only 12% of its land is cultivable both as terraces on hill slopes and tiny farm plots.³ Low-value subsistence farming based on cereal crops, dairy cattle and exploitation of forest resources is dominant in the hilly regions of Uttaranchal. Agricultural productivity in the hills is 12 to 14 quintals/hectare compared with 32 to 35 quintals/hectare in the plains. Rice and finger millets in the Kharif season and wheat and barley in the Rabi season are the main cereal crops whereas green gram, horse gram, kidney beans, lentils and pea are the main pulse crops of the state. Farmers in the hills must contend with small and fragmented land holdings, rain-fed farming (only 12% of the area in the hills is irrigated), inadequate or no marketing infrastructure, poor access to finance, strong control of middlemen, and market yards at a significant distance from farms. As a result of these constraints, over 24% of people living in the hill regions have to migrate to the plains to supplement their incomes.

1.2 Vision and Mission

HARC's stated vision⁴ is the holistic, integrated and sustainable development of mountain people based on their cultural values, traditions and resources. It also encompasses empowering people in ways such that they can take development decisions themselves and build a stable society that is free of social, economic and gender inequity.

¹ Uttaranchal is divided into two regions—Garhwal in the west and Kumaun in the east.

² Refer to the map of Uttaranchal in Annex 1 for a better understanding of district locations.

³ L.Raman, R. Singh, N. Anand, Greening the Rawain Valley – Impact of HARC's work in strengthening livelihoods in Rawain (Upper Yamuna) Valley, Uttaranchal, September 2005.

⁴ HARC Status Report (2003-2005) and Training Brochure

HARC's four-fold mission is:

- Creating and empowering local community based institutions and organizations.
- Building the capacity and skills of people to ensure sustainable livelihoods and food security.
- Strengthening local development efforts through Panchayati Raj Institutions.
- Regenerating the local ecosystem and restoring environmental balance.

1.3 Strategic Areas of Operation

Institution Development and Empowerment

HARC encourages the formation of community-based organizations—Self-Help Groups (SHGs), Farmer Interest Groups (FIGs), farmer federations and women's cooperatives—as the primary drivers of socio-economic change in the Garhwal mountains. A range of services are provided to help people form and successfully manage collective institutions through which they may increase their bargaining power, benefit from economies of scale, access microfinance, and enter new markets.

Agriculture Diversification – Technical Interventions for Strengthening Agricultural Livelihoods

Working through FIGs and their federations, HARC provides farmers with technical assistance during pre-cultivation, cultivation, harvest and post-harvest periods to address the problems of low productivity and inadequate technical knowledge that have been responsible for the decline of agriculture incomes in the region.

Agri and Agri-Allied Based Enterprise Development and Market Linkages

HARC's interventions in this area are designed to make small farmers more market-oriented, to overcome major supply chain challenges that are specific to small farmers, and to access new markets. Apart from male farmers, HARC is helping women farmers' SHGs to move up the agriculture value chain through the establishment of cooperatives for agro-processing activities.

Strengthening Local Self-Governance in Rural and Urban Areas

HARC is strengthening Panchayati Raj Institutions (PRIs) and Urban Local Bodies (ULBs) that are recognized as the lowest units of development planning. Interventions are aimed at building leadership skills of the elected representatives of these institutions, expanding their knowledge of critical development issues, and building their functional skills to address the same. Simultaneously, HARC works with community leaders and citizen groups to enable them to articulate their concerns, priorities and needs at the local decision-making level as well as to enable them to support reforms in local government institutions to make them accountable and transparent.

1.4 Funding Sources

HARC's 2005-2006 budget was Rs.6.20 million (\$0.13 million). Cord Aid, Netherlands, and the Society for Participatory Research in Action (PRIA), Delhi are the major donors. HARC also generates approx. 36% of its income through its training and consultancy services to government departments, other NGOs, PRIs, community-based organizations and entrepreneurs.

2. Capacity-Building of Small and Marginal Farmers

HARC has developed an end-to-end solution to enable small and marginal farmers in Uttaranchal to connect to and compete in lucrative markets in India and, eventually, abroad. The organization's capacity-building and facilitation support includes collective organizing, agriculture extension, backward linkages, market linkages, and microfinance.

2.1 Collective Organizing

2.12. Formation of Community-Based Organizations

In accordance with its belief that the best way to achieve sustainable socio-economic development is through the use of a participatory, community-driven approach, HARC facilitates the establishment of Farmer Interest Groups (FIGs), i.e. village level institutions of farmers and their federations/associations.

It is estimated that over 75% of farmers in the Rawain Valley region have less than 2.5 acres (1 hectare) of land.⁵ Prior to HARC'S involvement, these smallholders mainly engaged in subsistence production. The minority of small farmers who had surplus production were highly dependent on *aadthis* (agriculture commission agents) for inputs, credit and sale of produce. These arrangements locked farmers into supplying to *aadthis* with hardly any hope of receiving a fair return. HARC's interventions over the years have not only enabled farmers to increase the quantity and quality of production, but have also broken the hold of *aadthis* in the Rawain Valley through collective organizing. Through continuous interaction with the farming community, HARC has been able to build trust in its work and today 73 FIGs have formed and organized themselves into five federations, with a total membership of 1430 farmers as detailed in Table 1. Farmers' landholdings vary in size from 0.5 to 2 acres (0.2 to 0.8 hectares).

Table 1: Small Farmer Federations/Associations facilitated by HARC

Names of Federations/Associations	Year Formed	Block/District	Villages	FIGs	Members
Rawain Valley Fruit and Vegetable Growers Association	2001	Naugaon/ Uttarkashi	36	36	685
Fruit and Vegetable Growers' Association	2001	Purola / Uttarkashi	13	13	141
Devrana Fruit and Vegetable Growers' Association, Purola	2004	Naugaon/ Uttarkashi	08	08	102
Kamal Ganga Fruit and Vegetable Growers' Association, Netri	2004	Purola / Uttarkashi	11	06	126
Organic Fruit and Vegetable Growers' Association, Rajgarhi	2002	Naugaon/ Uttarkashi	10	10	376
Total			78	73	1430

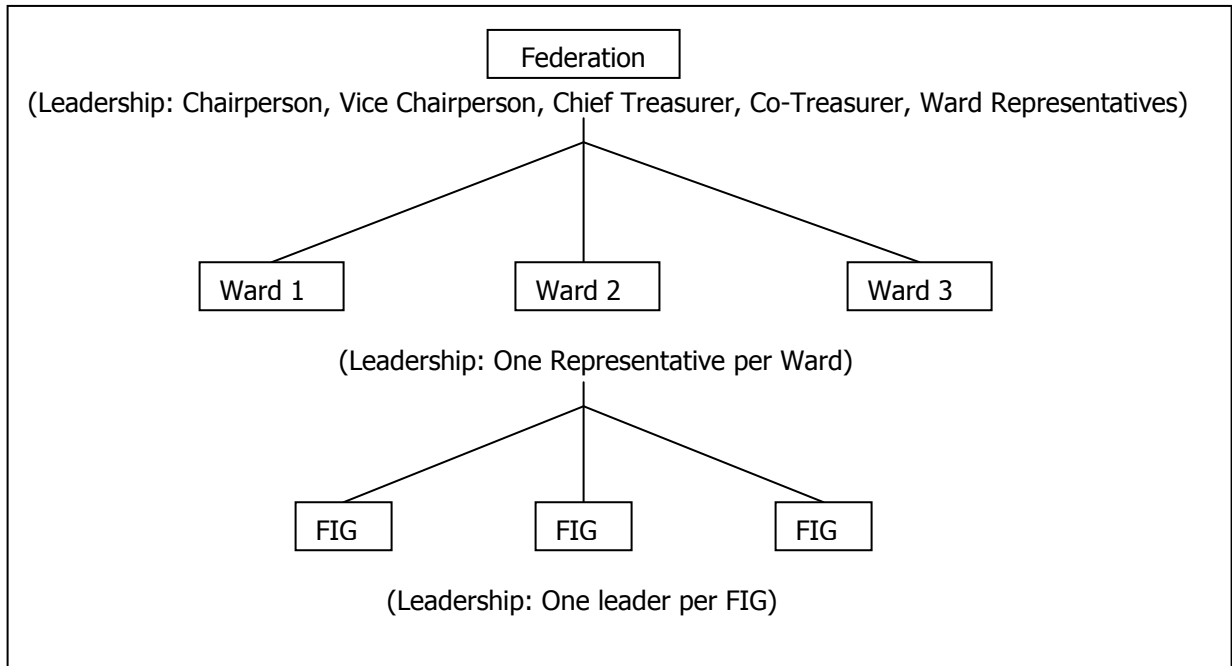
Source: HARC Status Report (2003-2005) and interviews with HARC staff.

⁵ L.Raman, R. Singh, N. Anand, Greening the Rawain Valley – Impact of HARC's work in strengthening livelihoods in Rawain (Upper Yamuna) Valley, Uttaranchal, September 2005.

2.13. Institutional Structure of Federations and FIGs

An FIG, defined by HARC as a village-based group producing agricultural or horticultural commodities, is the smallest unit in a federation's three-tier institutional structure followed by a ward that consists of a cluster of FIGs and, finally, an overarching federation. A diagrammatic representation is provided in Figure 1 below.

Figure 1: Federation Structure



The Rawain Valley Fruit and Vegetable Growers' Association, the first federation, was formed using a top down approach i.e. the federation was first set-up and followed by FIGs. The federation found it extremely difficult to establish relationships with its FIGs since their members felt somewhat disconnected from the larger federation as they hadn't been involved in its development from the start. This experience led HARC to modify its strategy to first encourage FIG formation followed by federation formation. Since conducting the field visit for this paper, HARC has facilitated the formation of a *Mahasangha* of all the federations, i.e. a federation of federations. The *Mahasangha* came into existence in June 2006. An ad-hoc executive committee has been established and is presently developing the *Mahasangha's* bye-laws.

2.14. Governance of FIGs and Federations

The federations have been registered under the 1860 Society Act in India. Each federation is governed by its own bye-laws though HARC is developing model bye-laws, which may be used by federations to strengthen their existing bye-laws or may be adopted by new federations.

Each federation and FIG has its own election system. In some federations, elections are held every two years while in others every five years. The bottom-up election process commences with each FIG electing a leader, followed by a cluster of FIGs electing a Ward Representative. Once an individual becomes a Ward Representative, he is eligible to run for a federation post

such as Chairperson, Vice Chairperson, Treasurer, and Co-Treasurer. These individuals, along with the Ward Representatives, constitute a federation's Executive Committee.

2.15. Operations of FIGs and Federations

Federations host monthly meetings on pre-determined dates, which may be attended by FIG members if they wish. Attendance of the Ward Representatives is mandatory at these meetings while attendance of FIG leaders is encouraged. Similarly, each FIG hosts a monthly meeting on a pre-determined date. Attendance of a representative from the federation as well as the Ward Representative is compulsory in order to communicate issues discussed at the federation level to FIG members and glean major issues from FIG members to put forth at the subsequent federation meeting. A wide range of issues are discussed at these meetings, such as production plans, new market information, input requirements, technical assistance needs, membership expansion, disputes etc. Additionally, these meetings are forums for decision-making on collective marketing and bulk purchase of inputs.

Each federation has an office in a centrally-located area, which is managed by an Office Manager who is the only salaried member of the federation. He is responsible for day-to-day functions such as record maintenance, bill payment, bulk purchase of inputs, farmer payments, office maintenance etc. While HARC provides initial office start-up assistance, federations are expected to cover their overheads.

HARC is now advising federations to establish sub-committees that will be responsible for various aspects of operations such as quality control, marketing, input procurement, transport etc. so that each issue will receive focused attention.

2.16. Sources of Revenue for Federations

Federations generate revenue to cover their operational expenses from the following sources:

- A one-time membership fee that ranges from Rs.50 (\$1) to Rs.200 (\$4). Federations have only recently realized the need and scope for charging an annual membership fee to generate additional revenue.
- A 1.75% transaction fee charged to Mother Dairy, a major corporate buyer.
- A service fee (5% of each transaction) charged to members for bulk purchase of seeds, fertilizers, pesticides and other inputs from agri-input companies.
- Service fees for renting and arranging for farm equipment such as spray machines, tractors etc.

In addition to the above, one federation is renting plastic crates at Rs.1 /crate per day to its members during the harvest season. The fee is Rs.2 for non-members. Federations are also likely to position themselves as distributors for agri-input companies in the future to generate additional revenue.

2.17. HARC Services to facilitate Collective Organizing of Farmers

A range of trainings and orientations are provided to enable farmers to launch and run their collective institutions, including:

- Group/institution formation and management
- Registration procedures, including coding bye-laws
- Governance

- Conflict resolution
- Accounts management
- Documentation management
- Organizing and running monthly meetings at the village, ward and federation levels
- Leadership development

2.18. Challenges in Collective Organizing

Interviews with HARC staff and federation/FIG members revealed the following challenges relating to governance, operations and communication:

- Lack of clarity in the roles and responsibilities of federations' Executive Committee members, resulting in low ownership and accountability.
- Poor two-way flow of information between federations and FIGs.
- Low attendance in monthly meetings. In particular, federation leaders and ward representatives are not attending FIG meetings regularly and ward representatives are not attending federation level meetings.
- Federation offices do not stay open throughout the year, resulting in fragmented service provision and information flow to FIGs.

The above challenges were highlighted by federation, ward and FIG leaders at a one-day session organized by HARC in March 2006 to provide a forum for farmers to discuss major strategic and operational issues. Participants were candid regarding the problems they faced and worked in small groups to devise solutions for the same. Without HARC's facilitation support, the federations may not have been able to constructively discuss and resolve their problems. Since March, HARC and the federations have signed a Memorandum of Understanding (MoU), which clearly defines each entity's roles and responsibilities in an effort to reduce federations' dependence on HARC for long-term sustainability.

2.2 Agriculture Extension - Technical Interventions for Strengthening Livelihoods

While agriculture has long been a major livelihood in the Garhwal hills, mono-cropping and low productivity were threatening the sustenance of this activity, thus affecting both economic and food security in the region. In response, HARC developed an Agriculture Service Center (ASC) at its Common Facility Center (CFC)⁶ in Naugaon block of Uttarkashi district and a system to deliver agriculture extension services. These services are provided through the following delivery mechanisms:

- On-going trainings and workshops conducted by HARC's in-house technical team of 20 people at the ASC or directly in villages.
- Agri-extension support to federations through 60 para-technicians who work on a fee-for-service basis. These individuals are generally skilled farmers from the local community, though they may receive additional training from HARC on topics such as vegetable nursery development, plant conservation, orchard management and formation and management of institutions at the village level. Para-technician fees vary based on the complexity of the training area.

⁶ The Common Facility Center in Naugaon is HARC's field outreach point to farmers and SHG members. A whole range of orientations, trainings, and dialogue sessions are conducted at this center. In addition, it provides space for HARC to conduct demonstrations of various agriculture production techniques. For example, HARC has set-up polyhouse and vermicompost structures at the CFC. The center also contains an agro-processing facility of a women's cooperative.

- Farm demonstrations/specialized trainings through expert Resource Persons from agriculture universities and other technical institutions. These individuals are paid around Rs.500 (\$11) per day by HARC in addition to actual expenses.⁷
- Federation offices exhibit HARC publications as well as its quarterly newsletter in Hindi, providing practical information on topical subjects.

To date, 2838 farmers have been trained in seed management, nursery management, organic farming techniques and certification, orchard management, pre- and post-harvest techniques, and crop diversification to name a few areas.

Examples of Agriculture Extension Services⁸

- HARC is creating a conscious awareness of organic farming and its benefits although farmers in this region are considered to practice organic farming because of the rich biomass base and high soil fertility. Farmers have been taught to prepare organic manure such as vermi-compost, Nadep compost, cow pat pit, vermin wash and liquid manure. See Table 2 for a breakdown of adoption. HARC is also assisting 376 farmers of the Upper Yamuna Organic Fruit and Vegetable Growers' Association to receive organic certification (a three-year process) from the Uttaranchal State Organic Seed and Certification Agency. Further, HARC is encouraging all farmers to allocate at least one third of their land for organic production and to certify this section. This would fit well with the State Government's decision to position Uttaranchal as an organic state.
- HARC has introduced poly-tunnel and poly-house techniques for production of off-seasonal vegetables. These poly-houses are owned either individually or by several farmers in a village though not necessarily by an FIG. Horticultural saplings are produced for self-use and for sale to nurseries and other farmers, thus presenting an additional source of income. Annual earnings from the sale of saplings are in the range of Rs.15,000 (\$333) to Rs.20,000 (\$444) with the potential to reach Rs.50,000 (\$1111).
- Rejuvenation of 20 apple orchards by grafting, planting of polynizer trees, spraying organic oil to reduce pests and disease, and training farmers in orchard management.
- Training on construction of water harvesting tanks and use of drip irrigation.
- Training on Integrated Pest Management, resulting in the adoption of this technique by 2118 farmers.
- Promotion of production of traditional food grain crops to increase food security as well as to increase farmers' control over seed production. A project was initiated to revive, conserve and propagate seeds of pulses like kidney gram (rajma), red gram (tor), horse gram (gahath) and black gram (uradh).

⁷ The decision to develop a specialized resource pool of experts followed HARC's unsuccessful attempts to hire these individuals to work in Uttarkashi district full-time due to the difficult geographic terrain and the absence of services and facilities, which these individuals have access to in the capital and larger cities.

⁸ HARC Status Report (2003-2005) and discussions with HARC staff

Table 2: Adoption of Organic Techniques

Technique	No. of Farmers
Vermi compost	1087
Liquid manure	1781
Nadep	56
IPM	2118
Cow pat pit	618
Neem oil	807
Neem khali	685
Vermin wash	112
Gronim	2219
Faramen trap	1412
BD heap	1593

Source: HARC Status Report (2003-2005)

2.3 Backward Linkages

HARC hosts an annual fair in November at its CFC where federation leaders and FIGs interact with representatives of agriculture input companies. This gives federation leaders an opportunity to initiate relationships with companies and sample their products. Thereafter, federations consult with their members and place bulk orders for seeds, fertilizers etc., benefiting from reduced costs. HARC has so far hosted more than 20 fairs attracting over 70 companies. HARC also invites companies to conduct seed trials at its CFC. Following these demonstrations, federations may choose to purchase seeds from companies. If requested by the federation, HARC may also provide assistance with the seed selection and negotiation process.

Finally, HARC conducts trials on appropriate technology for farmers. Agriculture equipment for these trials is generally provided by scientific research institutions. Spraying machines, seed sowing machines, grafting and pruning kits and other equipment are kept at the center and used for demonstrations. In some instances, equipment is also rented to federations for use by their members.

2.4 Market Linkages

HARC's role in facilitating market linkages for farmers was the natural evolution of its agriculture extension services, which had significantly increased farm output. When farmers arrived at HARC's doorstep seeking assistance with selling their large surplus of tomatoes, HARC realized it needed to create a market facilitation strategy. The strategies discussed in this section are based on HARC's experiences over several years.

2.4.1. Crop Selection

Uttaranchal has a range of agro-climatic conditions, and is thus in a good position to produce horticulture crops, such as fruits, vegetables, flowers, mushroom, tuber crops, tuber crops spices, medicinal and aromatic crops and plantation crops like tea. This potential should be understood in the context of changing food consumption patterns in India and the implications of these changes for future production decisions. Studies have shown that per capita consumption of cereals has fallen in both urban and rural households while per capita consumption of fruits and vegetables, animal products, and edible oils has increased. Non-cereal consumption levels are higher in urban areas where rising incomes are enabling people to have a more varied diet. A comparison of 2002 and 1988 data from the National Sample Survey Organization (NSSO) reveals

that fruit and vegetable consumption has increased from 11.5kg to 13.7kg in urban households and from 7kg to 9.6kg in rural households ⁹.

Prior to HARC's involvement, the majority of small farmers in the Rawain Valley had neither experimented with production of fruits and vegetables nor made production decisions based on market demand since they lacked technical know-how in cultivating new crops and had very limited or no access to market information to gauge consumer preferences. Rawain Valley's farmers have now diversified their production based on consumer preferences and demand. While Kharif continues to be the main season, farmers also grow several off-season vegetables during the winter months.

As highlighted in Table 3, several new varieties of vegetables have been introduced including beetroot, broccoli, cabbage, carrot, pumpkin, coriander, French bean, lettuce, pea, and tomato. Farmers are now growing 78 varieties of 16 kinds of vegetables for commercial sale. Similarly, farmers have diversified into fruit production and are growing 30 varieties of fruits such as pomegranate, walnut, kiwi, plum, pear, peach, parsiman and malta.

Interviews with farmers revealed that they are currently mainly dependent on HARC for information on new, high potential commodities though some enterprising farmers were doing so through their own networks. However, as the federations develop and access information communications technology, they will play a more active role in assessing demand for new horticultural commodities.

Table 3: Adoption of New Vegetables

Vegetable	No. of Farmers
Colocasia Root	376
Beet Root	65
Cabbage	302
Capsicum	587
Carrot	65
Cauliflower	1236
Coriander	212
Green Chili	308
Pea	2872
Potato	2800
Pumpkin	122
Tomato	2718

Source: HARC Status Report (2003-2005)

2.42. Production Planning

HARC encourages farmers to develop a crop calendar (see Table 4) with a corresponding production plan since planning and documenting what and how much each farmer will produce enables federations to forecast supply quantities for potential buyers. Each FIG is expected to undertake a seasonal production planning exercise with its members and communicate this information to its parent federation. However, this process is at an early stage and requires significant handholding from HARC until federations gain experience to manage this process.

⁹ S. Chatterjee, A. Rae and R. Ray –Food Consumption, Trade Reforms and Trade Patterns in Contemporary India: How Do Australia and NZ Fit in? March 2006

Table 4: Crop Calendar of the Rawain Valley Association

Crop	Sowing Time	Production Time	Avg. Prod. (tons)
Pea	Nov-Dec	Mar-April	2000
	Jun-Aug	Sep-Nov	500
Potato	Dec-Jan	Jun-July	1000
Tomato	Feb-March	July-Aug	2000
Capsicum	Mar-April	July-Aug	500
French Bean	Mar-April	Jun-July	1000
	July-Aug	Sep-Oct	200
Ginger	April-May	Sep-Oct	500
Apple		July-Sep	10000

Source: HARC Federation Report 2006

Note: Calendars with estimated production per month for each crop are also developed.

Apart from FIG production planning, HARC is dividing the farming areas it services into different agro-climatic zones and is identifying the high volume, high value commodities that could be grown in these regions based on market research. Hereafter, HARC will only facilitate market linkages for these commodities. Four zones have been identified in Uttarkashi district, namely Naugaon for fruits and vegetables, Chynyalisaur for pulses, Mauri for pulses, and Rudraprayag for spices. Three spice zones have been identified in Chamoli district as well. The commodity zoning strategy has been introduced to streamline the entire range of services HARC could provide to farmers. Federation members may choose to grow other commodities, which they may sell through their own means or through federation-established linkages.

Another important tactic introduced by HARC is adaptation of sowing times so that produce may be offered at the start of the season when supply volumes are low and farmers can take advantage of higher prices.

2.43 Market Research and Market Linkages

HARC has conducted market surveys of 14 *mandies*, government-mandated market places, in Delhi (Azadpur), Okhla, Kashipur, Chandigarh, Meerut, Muzaffarnagar, Dehradun, Saharanpur, Lucknow, Kanpur, Sarahan (Himachal Pradesh) and Bangalore. These surveys mapped the fruits, vegetables and crops being sold in these mandies with corresponding price trends; documented logistical aspects such as transport costs, warehouse and cold storage availability, labor charges etc.; and identified reliable *mandi* agents. Federation leaders participated in the survey exercise, enhancing their knowledge of markets and enabling them to establish direct relationships with *mandi* agents.

Apart from mandies, HARC is working towards developing relationships with corporate buyers. Mother Dairy, a company of the National Dairy Development Board, is the most successful of these relationships. Please refer to Box 1 for further details. HARC also publicizes produce available from federations on its website, and has built relationships with several small and medium commercial buyers nationally through this route.

Decisions on what, how much and whom to sell to are taken annually at a spring meeting hosted and facilitated by HARC. At this meeting, federation representatives meet with *mandi* agents and corporate buyers to present their estimated production volumes for different commodities. This

information is based on the production planning exercise undertaken by FIGs. Mandi agents and corporate buyers reserve the amounts they wish to purchase and enter into a formal agreement regarding the same. This meeting is held at HARC's CFC, which is geographically close to several farms should buyers wish to conduct field visits.

HARC is now working towards developing a common brand name under which federations could sell their horticultural commodities to wholesalers. In 2005, federations earned Rs.57.2 million (\$1.2 million) from the sale of agriculture produce.

Table 5: Major Buyers of Federation Produce

Name of Buyer	Location	Commodities Procured	Quantity Sold (tons) in 2005	Total Value (Rs. million)
Mother Dairy	Delhi	tomato, coriander, French bean, apples, pears	1200	7.5
Kashipur Mandi	Delhi	tomato, coriander, French bean	200	1
Saharanpur Mandi	Saharanpur	Potato, pea, ginger, colassia root, tomato, coriander, French bean	100	0.5
Nirjanpur Mandi	Dehradun	Potato, pea, collasia root, ginger, tomato, coriander, French bean, cabbage, cauliflower	2000	10
Okhla Mandi	Delhi	Pea, tomato, French bean	200	0.9
Azadpur Mandi	Delhi	Tomato, coriander, French bean, apples, pears	300	1.3
Fruit Mandi	Kanpur	apples	2000	30
TOTAL			6000	57.2

Source: HARC Federation Reports and HARC staff

Note: US\$1=Rs.45.09

During the harvest season, HARC collects daily price information from different mandis based on prices displayed on their websites as well as through direct phone calls and communicates this information to federations. Federations analyze price trends across mandis and take decisions on where to supply if they have not already entered into an agreement with a specific mandi agent. Federations may also speak directly to particular mandi agents whom they have established relationships with to access this information. In some cases, federation leaders send special price information requests to HARC that are fulfilled on a case by case basis. During the harvest season, federations are required to post the daily price information from different mandis at their office. In practice, this is not always followed resulting in price misinformation. HARC has, therefore, advised federations to strictly follow the above price dissemination method.

Through a combination of the aforementioned methods, farmers build their knowledge about price trends across markets. In time, federations could be equipped with computers and Internet, enabling them to directly access this information. Table 6 discusses the various ways in which prices are determined and payments fulfilled.

Table 6: Price Discovery and Payment Mechanisms

Buyer /Type of Buyer	Nature of Sale Contract	Price Discovery	Payment Mechanisms
Mother Dairy – Corporate	Pre-fixed	Price determined as per quality of produce received at MD warehouse in Delhi. Farmer informed of rate received after sale. One rate for each grade of produce.	Checks sent to federations every 7-14 days. Each farmer receives a check from the federation based on the volume sold and price received.
	On the Spot (for surplus production)	MD representative positioned in federation office to communicate daily prices as per quality of grade. Prices communicated on the spot to FIG members present at federation office who may choose to sell to MD or not.	Payment as above.
Mandis – Private agents licensed to operate at government-mandated marketplaces	Pre-fixed	Market price quoted at the mandi as per grade of produce. Different rates may be received even within the same grade. Farmer informed of rate received after truck returns with agent’s representative who carries individual farmer receipts.	Generally, cash payments or if agent has provided an advance to the federation that is deposited in its bank account, the federation may draw individual checks to farmers against this amount.
Aadthis - Private agents with their own links to mandi agents and wholesalers	On the Spot	Aadthis quote rates to federations at their offices or even directly to FIGs. Farmers negotiate based on price being offered by Mother Dairy and mandies.	Payments generally in cash.

Box 1

Relationship with Mother Dairy

In 2003, HARC initiated a relationship with Mother Dairy to facilitate the sale of surplus tomatoes from FIGs, which could not be absorbed by the local market. All five federations now supply tomatoes, peas, cabbage and capsicum to Mother Dairy for its 500 retail booths in North India.

Procurement System

Process

- Federations are located in different agro-climatic regions, and HARC works with them to time supply of produce so there is no internal competition.
- Federations gather data on estimated production from FIGs at the beginning of season.
- Mother Dairy representatives and federation leaders meet in April to discuss quantity of vegetables to be supplied, and enter into formal agreements.
- Federations develop collection routes, but Mother Dairy arranges transportation. Cost is included in purchase price, but is clearly communicated to farmers unlike other agents who are not as transparent and may inflate transport costs.
- During the peak procurement period, a representative from Mother Dairy is placed at each federation office. He is responsible for overseeing procurement at the field level and communicating daily price rates for different grades.

Challenges

- Too many federation representatives dealing with Mother Dairy present accountability challenges. Thus, HARC is advocating that federations appoint one liaison in order to present a unified voice to the company.
- High initial rejection rates (70%), though this rate reduced to 30% in 2005 following a Mother Dairy training in how to grade produce.
- Insufficient understanding among farmers about why their produce is being rejected. Farmers request specific feedback so they may improve their production practices.

Payment System

Process

- Mother Dairy generates unique product codes for each agricultural commodity and farmer.
- Federations record daily amount being supplied by each farmer member. Records track grade of produce, amount rejected and rate received.
- Every week, Mother Dairy sends federations a consolidated check along with a copy of each farmer's payment record.
- Federations cross reference Mother Dairy's records with their own records.
- Checks are drawn by federations in favor of each farmer member.

Challenges

- Payments are more often being made once in 10-15 days by Mother Dairy, posing cash flow problems for farmers.
- Drawing individual checks is a time consuming process, so federations are keen to shift to direct deposit through e-banking.

Impact

- Tomatoes represent the single largest commodity supplied to Mother Dairy in the amount of 25% of total transactions. Farmers presently grow 14 varieties of tomatoes.
- Produce sold to Mother Dairy amounted to Rs.6.04 million (\$0.13 million) in 2003, Rs.7 million (\$0.15 million) in 2004, and Rs.10 million (\$0.22 million) in 2005.

2.44. Logistics Management

The difficult task of timely procurement and supply of perishable commodities is further challenged in states like Uttaranchal with its steep mountains. Therefore, each federation identifies its own transport provider and works with it to develop a collection route. The FIG members are expected to bring their produce to various Collection Points/Centers along the route. The collection points are generally located close to a federation's office, and sometimes the federation office itself serves as collection point. Given the difficult terrain, farmers and transporters have been facing significant challenges that would need to be resolved in the future to address lost income due to supply chain inefficiencies. Some of the challenges are as follows:

- Collection Points/Centers are generally open spaces that provide little to no weather protection, thus exposing produce to quality loss. Since trucks often arrive late due to landslides and poor road conditions, the absence of adequate and secure storage space at these collection points is a major drawback. Space available from the government has the capacity for barely 10% of the total supply quantity.
- Many farmers find it difficult to bring their produce to the Collection Point and would benefit from the construction of ropeways.
- Collection points/centers do not have sufficient space for grading produce.
- Often, there is a difference between the number of trucks requested and those that actually arrive at collection points, resulting in wastage of produce or quality loss.

2.5 Access to Financial Services and Social Security

Access to credit from financial institutions has been poor and the majority of farmers have been dependent on moneylenders and large farmers who offer loans at high interest rates. HARC, therefore, introduced several measures to increase access to finance:

- FIG members have been encouraged to save on a monthly basis. Savings range from Rs.10-50 per month per member. It should be noted that FIGs are likely to rename themselves as FSHGs since it has been challenging to secure bank loans because they are not referred to as SHGs despite performing similar savings functions.
- Approximately 90% of farmers have Kisan Credit Cards (KCCs) through which they have secured loans amounting to Rs. 14.78 million (\$0.33 million). KCCs are offered by several banks in India and are based on a model scheme developed by the National Bank for Agriculture and Rural Development (NABARD). Farmers may use these credit cards to purchase agriculture inputs such as seeds, fertilizers, pesticides etc and also to draw cash for their production needs. Federations have played an important role in facilitating access to KCCs by hosting 'loan fairs' where banks such as the State Bank of India, Cooperative Bank and Punjab National Bank have participated.
- HARC is working towards setting-up its own micro-finance institution, which would lend to federations who would on-lend to FIGs who, in turn, would lend to farmers. Towards this end, HARC has been visiting MFIs in other parts of the country to study their models.

On the social security front, HARC is encouraging federations to establish relief funds. The Rawain Valley Fruit and Vegetable Growers Association has started a Relief Fund that currently has Rs.86,000 (\$1911). The federation takes Rs.2 for every 10kgs of production it markets on behalf of its members. This fund may be used only when a federation member suffers a loss from damage to his produce caused by an accident or natural calamity. Also, 762 farmers who participate in the KCC scheme have secured Life Insurance with a risk cover of Rs.25,000 (\$555).

3. Interventions for Increasing Livelihood Security of Women

3.1 Collective Organizing

SHGs are the second type of community-based organization promoted by HARC. In a region where all income generation activities have been dominated by men and where women's role in farming is generally not recognized, the introduction of SHGs has provided an avenue for women to increase their voice in the community, to access micro-credit, to take-up new, women-led income generation activities and to make their economic contributions more visible.

Presently, there are 182 SHGs¹⁰, of which 138 are covered under the government's Swarnjayanti Gram Swarozgar Yojana (SGSY) scheme. Seventeen SHGs with a total membership of 213 women have formed the Rawain Womens' Multipurpose Autonomous Cooperative Society (RWMACS). These SHGs had taken up agriculture income generation activities and were ready to move up the value chain through agro-processing. Now, they supply the raw material for the cooperative's processed products. The presence of the cooperative as a buyer has reduced exploitation by local traders who previously purchased surplus agriculture produce from women at very low prices.

3.2 Technical Assistance

HARC's technical assistance to individual women entrepreneurs, SHGs and the cooperative fall into four thematic categories:

1. **Entrepreneurship Development Services:** HARC's trainings are geared toward equipping potential entrepreneurs with the knowledge, skills and attitude required to successfully launch and manage a micro-enterprise.
2. **Institution Development Services:** HARC provides a range of trainings to help women build and sustain their community-based organizations such as leadership development, vision and mission development, human resource development, organization management, conflict resolution, and legal procedures such as registration and coding by-laws.
3. **Financial Management Services:** Proper financial management is a very important, and often a challenging function. HARC trains women in bank account set-up and management, book keeping, inter-loan management etc.
4. **Business Development Services (BDS):** HARC's BDS services include selecting income generation activities, strategic planning, production planning, production, quality control, marketing etc.

3.3 Micro-Finance Services

HARC has been playing the role of facilitator between SHGs, the Rawain Women's Cooperative and banks. Without this service, the SHGs would have found it very difficult to engage the banking community. Apart from specific bank linkages, HARC invites bank officials to raise awareness among women about available schemes as well as to train them on banking procedures. To date, SHGs have inter-loaned Rs.11.2 million (\$0.24 million) for marriages,

¹⁰ 17 SHGs have reached Stage 4 and 133 Stage 3 as per NABARD standards.

construction of homes, daily expenditure, education, health, and working capital. Successful linkages include ¹¹:

- Rs. 1.08 million (\$0.024 million) to 45 members of 16 SHGs under the Sahyog Awas Yojna for construction of their homes.
- Rs. 0.23 million (\$0.005 million) term loan to 13 groups.
- A Cash Credit Limit (CCL) of Rs. 0.5 million (\$0.011 million) to the Rawain Women's Cooperative.

3.4 Functioning of the Rawain Women's Cooperative

As mentioned earlier, 17 SHGs engaged in income generation activities have formed the Rawain Women's Cooperative and are moving up the agriculture value chain. Women have been trained to run the cooperative as a business though it will be several years before the cooperative could function independently of HARC's support.

3.41. Production Planning

The cooperative sources pulses, spices, fruits and vegetables from its SHG members or in the open market if the latter is significantly cheaper. Decisions on what to produce and how much to produce are taken at a monthly meeting attended by the cooperative's executive leadership and SHG leaders. At this meeting, SHG leaders present their members' production estimates for the month. This information along with past sales is used to plan the cooperative's monthly production target. The prices that women will receive for their produce are also set at these meetings, based upon prevailing market prices. However, there may be an upward revision of this rate at the actual time of procurement if market prices are high and supply short. At present, around 616 members of SHGs are marketing their produce to the Rawain Womens' Cooperative.

3.42. Production

The cooperative has a production center at HARC's CFC in Naugaon where processing, packaging and storage activities are conducted. Product recipes and production processes are clearly documented and strictly followed. The center is managed by 10 full-time staff. Additionally, women from SHGs are called on a rotation basis to grade, process, and package commodities. The women are encouraged to specialize in particular functions. Generally, cooperative staff inform SHG leaders about their human resource needs on a weekly basis and they, in turn, are responsible for allocating work within the group. SHG leaders must ensure that each member gets an opportunity to work at the production center if she so desires. By working at the production center, SHG members earn extra income and are able to get more involved in the cooperative rather than simply supplying raw material. On average, a woman would work for between three and ten days per month at the production center. Women are paid approx. Rs.50 per day, however, the cooperative is working towards compensation on a piece rate basis to increase productivity.

The Food Products Organization has certified the cooperative lending credibility to its brand name. Packaging is basic but meets the mandatory labeling requirements. The cooperative's product range is detailed in Table 7.

¹¹ HARC Status Report (2003-2005)

Table 7: Product Range of Rawain Womens' Cooperative

Month/s	Product	Price
Nov-Dec	Malta fruit juice	Rs.40 for 750ml
Nov-Jan	1.Amla candy 2. Amla chutney 3. Amla pickle	1. Rs.10 for 100 gms 2. Rs. 40 for 500 gms 3. Rs. 35 for 500 gms
Nov-March	Pulses (16 varieties)	Rs.10-40 for one kg
May –June	Apricot Jam	Rs. 35 for 500 gms
July - Aug	Garlic Pickle	Rs. 40 for 500 gms
July – Aug	Apple Jam	Rs. 35 for 500 gms

Source: Discussion with cooperative staff, March 2006.

Note: US\$1=Rs.45.09

3.43. Marketing

Cooperative products are presently stocked by 98 retailers in Dehradun—the capital of Uttaranchal—, 16 retailers in North India, and by several small shops along pilgrimage routes. During the peak tourist season, the cooperative also sets up around eight stalls along the three popular pilgrimage routes of Badrinath, Yamunotri and Gangotri to increase sales. Presently, HARC's marketing staff assist the cooperative with establishing retailer relationships in India.

SHG members may also sell products in their villages, for which they receive a 10% commission. This works well during the festival and marriage seasons. The packaging on these products is much simpler than for retail outlets.

In 2003-2004, the cooperative recorded sales of Rs. 0.19 million (\$0.004 million), which increased to Rs.0.43 million (\$0.009 million) in 2004-2005.¹²

¹² L.Raman, R. Singh, N. Anand, Greening the Rawain Valley – Impact of HARC's work in strengthening livelihoods in Rawain (Upper Yamuna) Valley, Uttaranchal, September 2005.

4. Conclusion

HARC's experience demonstrates how small and marginal farmers can improve their economic status by organizing themselves into grassroots, collective institutions. However, it also highlights that such institutions require a broad range of capacity-building services to match their growth trajectory along with continuous hands-on interaction. Another learning is that organizations that have a history in the community may be better positioned to catalyze and nurture collective-action institutions than outside groups. Finally, in analyzing the achievements of HARC's model, it is important to recognize that HARC is lead by a social entrepreneur who brings long-term vision, strong networks, and business acumen to HARC's work.

In terms of sustainability, the federations are at different stages of maturity and none are functioning without some type of support from HARC. Recognizing the importance of putting these institutions on the path to sustainability, HARC is repositioning itself as a service provider to the federations. Changing how federations presently view HARC will, however, take time and will not be a simple process. HARC is also launching the Terrace Cultivators Marketing Company whose primary shareholders will be federations and cooperatives. This producer company will primarily focus on marketing value-added products throughout India and abroad. The Small Industries Development Bank of India (SIDBI), the State Bank of India, and Citibank are potential investors while the GMED-USAID project is providing technical assistance for setting-up the company, including business plan development. If this company is successful, it will reduce HARC's significant role in facilitation of market linkages.

The results of HARC's work are clearly visible, but farmers in the Rawain Valley continue to face challenges due to poor roads, absence of adequate storage infrastructure, insufficient rural connectivity, and limited access to credit. These and other challenges would need to be solved in conjunction with the public and private sectors if Rawain Valley's farmers are to compete more broadly in national and foreign markets.

Annex 1: Map of Uttaranchal

