

LINKING SMALLHOLDER FARMERS OF HILLS TO VEGETABLE MARKETS: OPPORTUNITIES AND CHALLENGES



Hill farming has its own unique characteristics but its growth potential has remained under exploited due to inaccessibility of the hilly areas which inhibits the transfer of latest technology, lack of credit infrastructure, limited marketing facilities and prevalent marketing malpractices. The variation in altitude and climate offers natural advantage for crop diversification such as horticulture, forestry, floriculture, aromatic and medicinal plants. The soil conditions are good for the production of fruits and vegetables. The climatic and soil conditions allow growing sub-tropical and temperate fruits, vegetables and ornamental plants.

The Uttarakhand state comprises

ing of the Central Himalayas is spread over 53.48 lakh hectare and inhabits 101.1 lakh population (Census, 2011). Uttarakhand is included in the National Agro-climatic zone no 9 and 14. The average land holding is very small and less than a hectare per family. The Himalayan region has become highly vulnerable due to geological reasons and additional stress caused by over exploitation of natural resources, increased population pressure and other related challenges. Out of the total reported area of 53.48 lakh hectare, only 7.66 lakh hectare (14%) is under cultivation. But still agriculture is a prime source of livelihood for most of the hill community.

Uttarakhand is a major supplier of off season vegetables to markets in

North India and this sector has further opportunities to be scaled up. Farmers have modified their cropping calendars as per market demand. In hill region, large area is covered under tomato, potato, pea, cabbage and cauliflower during summers.

Status of vegetable production in Uttarakhand

In Uttarakhand annual vegetable production from an area of 88.3 thousand hectares was 1016 thousand metric tonnes during year 2014. Area under vegetable crops in Uttarakhand has increased from 57 thousand hectares in 1991-92 to 88 thousand hectares in 2013-14 showing 54 per cent growth. The productivity of vegetables is 9.86 MT/Ha in the state according

to the Directorate of Horticulture and Food Processing. This sector is a good source of income and employment generation. But supply in Uttarakhand is equipped with inefficiencies across the entire chain which consequently results in poor price realization for the producer farmers. On the other hand, consumers have to pay higher prices for these commodities. A big chunk of consumers' money goes to number of market intermediaries who exploit small farmers.

Present scenario of agriculture market in Uttarakhand

Dual marketing structure dominated by the central/state government and private agencies operate for food grains and many non-food crops. Most of the fresh produce like fruits and vegetables are distributed across the markets through a chain of multiple intermediaries starting from farmers to commission agents, wholesalers, traders, retailers/vendors and finally to the consumers. To address the demand of increased market surplus, there is an urgent need to strengthen the network of regulated markets. As per the recommendations of the National Farmers Commission (2004), a regulated market should be available to farmers within a radius of 5 km. However in Uttarakhand density of regulated market is far away from the norms.

Small farmers due to their small surplus in production, generally are exposed to higher degree of risk and

transaction costs. The producers and the consumers often get a poor deal and the middlemen controls the market, but do not add much value. There is also massive wastage, deterioration in quality as well as frequent mismatch between demand and supply both spatially and over time. So any innovative institution that links farmers to market, reduces transportation cost and minimizes risks will help them to participate in markets.

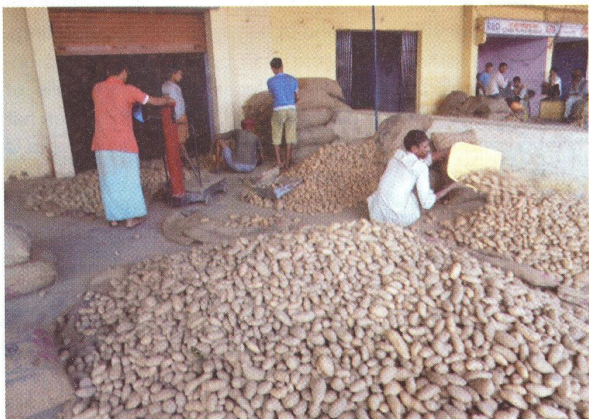
Uttarakhand Krishi Utpadan Mandi Parishad (UKUMP) is the nodal agency responsible for agricultural marketing in the State. The state government has amended the APMC Act, in line with the Model Act 2003. The amended act facilitates setting up of private markets, farmer consumer market, contract farming, e-trading, etc. Uttarakhand also adopted the Act in the year 2011 with the hope that the Act would streamline the market opportunities for the farmers and market investment would flourish with increased private partnership. At present there are 27 principal markets, 31 sub market yards and 27 weekly markets in Uttarakhand. There are only 28 cold storages in the state as on 31 March 2014 with total capacity of 84545 tonnes. The APMC Act in its present form adversely affects producer farmers as it restricts the choice of the farmers for selling produce. The APMC Act forces the farmers to sell their produce only to middlemen approved by the government in authorized mandies.

This is appropriate, if it is ensured that brokers in the Mandi do not collude in price fixing and hoarding. Online commodity trading in APMC can ensure a better transparent trading system. Karnataka has taken the step by launching online commodity trading in 35 APMC markets in 2014-15.

Vegetable marketing system in Uttarakhand hills

In local mandis within the state, private brokers/wholesalers are traditionally providing inputs to farmers such as seeds and fertilizers, cash advances and sometimes items of basic needs. These inputs are given with the commitments from the farmers/producers to sell the vegetables back to them. In local mandis, it is the trader who decides on the quality and value of the produce and the whole system is not transparent. Farmers have negligible bargaining power as they are mostly in debt to the traders/private brokers. Different structure of value chain of each crop requires different types of interventions. For example, potato is a low margin crop and the biggest beneficial effects can be obtained by reducing taxes and commission rates, whereas for tomato which has a relatively higher retail margins, reducing the retail margin will fetch largest effects.

As per the APMC Act, it is the buyer who pays for the market fees and commission rates but the case is just opposite to it. In practice, the burden of market fees and commission rates



Grading and sorting activity at market place



Bidding of vegetable produce in market



Transportation of vegetable produce to different places



Off seasonal vegetable production through farmer's collectives

are fully or partly passed on to the farmers. Existing supply chain model for vegetables shows that farmers carry their produce to commission agents at nearby APMC Mandi where auction is conducted and produce reaches to wholesalers through bidding (highest bid). For the process commission agent charges 6-7 % commission which includes 2.5% as Mandi fees. Big wholesalers then pass on the produce to small wholesalers charging 5-6% margin from them. Small wholesalers then charge 15-20 % margin from retailers after adding logistic and other charges. Finally, consumers receive the produce from the retailer who takes 15-20 % margin further. Progress in the production of fruits and vegetables depends critically on the marketing infrastructure available to the farmers.

The corporate led fresh food retailing is emerging very fast now a days. The retail companies like Mother Dairy are developing direct linkages with farmers for procurement of fresh produce like vegetables through formal and informal contracts. There are some advantages and disadvantages for farmers selling vegetables to retail companies like "Mother Dairy". The advantages are that the pricing mechanism is very transparent, producers receive higher prices, there is uniform price for every farmer, mode of payment is easy and regular. However there are some disadvantages also. Retail companies purchase only good and

'A' grade produce, does not provide input facility and limited demands from retail companies for different vegetable produce.

Marketing through collectives

Aggregating producers into collectives is one of the most effective means for reducing risk in agriculture and improving the access of small and marginal farmers to investment, technology and markets. Several Farmers Producers Organisations (FPOs) are operating in the state, registered under various laws such as cooperative laws, trusts, federations, and companies act. The basic purpose envisioned for the FPOs is to organise small farmers for backward linkages mainly input supply like seeds, fertilizers, credit, insurance, knowledge and extension services; and for forward linkages such as collective marketing, processing and market led agriculture production. Various agriculture cooperatives have been formed for providing a range of services to their members particularly access to inputs, markets, information and communication. However this cooperative movement has also suffered from major problems due to poor management. As a result, farmers disenchanted from the cooperative movement and returned to their conventional low profitable options. For raising a new hope to such farmers, a new framework for decentralized procurement of vegetables should be followed so that the

benefit shall trickle down to producer level also. Suitable electronic media network can be used through which multiple agencies including private sectors like retail companies can procure vegetables directly from producer companies in the villages. Economies of scale (low handling cost, transportation cost and storage cost) should be ensured through promotion of producer organizations.

Major Issues and Challenges for vegetable cultivation

- Majority of farmers have small, marginal and fragmented land holdings. In the state, 70 % of the land holdings are less than 1 ha in size.
- Soil erosion is a major problem in the hilly regions of Uttarakhand due to its undulating topography and high intensity and erratic rainfall. Due to soil erosion, productivity of land in hilly region is deteriorating.
- More than 50% of the area is under rainfed agriculture. In hills of Uttarakhand, the ratio between net irrigated area and net sown area is about 11%.
- Limited use of farm implements in hill areas is also an issue for low productivity in the state. There are several factors that inhibit the use of improved farm implements in hills which include poor purchasing power of farmers and limited knowledge of farmers about available implements.

- There is a rise in incidences of crop destruction by wild animals especially by monkey and wild boars and are perceived as a serious threat to agriculture.
- Inadequate infrastructure for value addition, storage and agro-processing units.
- Lack of good roads and transportation facilities.
- Lack of labour force due to migration of families from hills to plain and other state.

Recommendations for efficient supply chain of vegetables in Uttarakhand

At Production level

- The R & D institutions shall produce high yielding, disease resistant varieties and extension agencies shall ensure its supply to vegetable growers through efficient extension system.
- Community based seed production units or seed banks shall be made at village or community level by providing skill based trainings on seed production of seasonal and off-seasonal vegetables.
- Farmers in hills should be encouraged to increase vegetable gross production by adopting high yielding varieties, cost reducing technologies, post-harvest management and other institutional mechanisms to reduce farmer's price and yield risks.
- Cluster approach for consistent supply and efficient post-harvest handling may be followed. There is a need for setting up of collection centers near vegetable growing clusters with facilities for sorting, grading and packaging.
- Average productivity of vegetable crops in Uttarakhand is (97.32q./ha.) very low and far from the national average yield of 154.6 q/ha. It is mainly because of poor knowledge as well as low adoption of scientific technologies of vegetable cultivation. Therefore, government

is now providing trainings to farmers on sorting, grading, packaging of vegetable produces so as to fetch better market price.

- The menace of wild animals (wild boar and monkey) is a serious problem for hill agriculture. Many times, a significant part of production is destroyed by them. In order to prevent these losses, protected cultivation should be promoted on wider scale.
- Regular migration of families from hills is leading to a serious problem of availability of labour for vegetable farming which is labour intensive activity. The local labour available under MNREGA may be utilized for remunerative vegetable production system.
- There are ample opportunities to add value to vegetable produce as organic following some thumb rules of organic cultivation. The produce can be sold under brand "Organic" to nearby cities like Delhi where its demand is very high.

At Processing Level

- Demand for processed food is increasing but the level of secondary processing is very low in the state. Investment in food processing, cold chain, handling and packaging of processed food needs encouragement.
- Since the area and number of farmers growing fruits and off seasonal vegetables is increasing in the state, cold chain should also be encouraged to reduce the loss of the produce during transportation.

At Market level

- Price fixation can be discussed at the policy level. Price fixation committee for vegetable produce can be formed at district level with farmer's representation.
- In most of the formal markets, collection of market fee is at multiple points which have a cascading impact on prices. Therefore, a single unified fee structure should be fol-

lowed.

- Addressing infrastructure requirements in the vegetable sector, especially physical market infrastructural facilities for drying, cleaning, sorting, grading, packaging, covered sheds, auction floors, storage go-downs, construction of link roads should be a priority.
- Information regarding pricing system and market information shall be broadcasted through community radio and local newspapers.
- The latest and updated local, state and national level market information should be made available to producers by Market Committees and Marketing Boards through large display boards for developing marketing intelligence among farmers.
- ICT Portal providing market information (price, demand and supply situation), name and address of service providers and other value chain actors can be utilized for flow of information among the stakeholders.

There is no unique model that connects small farmers better to the market. In Uttarakhand, some of the innovative value chain models are slowly coming up, through NGO participation, cooperatives, producer companies and private modern retailers as well as co-operative retailers. The retail companies are investing in developing direct linkages with the farmers for procurement of fresh produce in Uttarakhand. Public Private Partnership models can ensure faster development and growth of vegetable sector in the state. Though it requires a lot of infrastructural reforms on the part of Government to make these models successful in the state.

*Arunava Pattanayak, Director,
Renu Jethi, Scientist and Kushagra
Josh, Scientist, ICAR-Vivekananda
Parvatiya Krishi Anusandhan Sanstha,
Uttarakhand*