

Sustainable Livelihoods in the
Kailash Sacred Landscape

Promotion of the Off-Season Vegetable Value Chain in India



ICIMOD



FOR MOUNTAINS AND PEOPLE



The Kailash Sacred Landscape Conservation and Development Initiative (KSLCDI) includes remote portions of the Tibet Autonomous Region of China and contiguous areas of Nepal and India. The landscape is environmentally fragile and its people are highly vulnerable to climate change and environmental degradation. KSLCDI aims to improve livelihoods by carrying out activities in farm and non-farm sectors while simultaneously promoting ecosystem management and the efficient use of natural resources including water and energy. The mountains of this landscape provide a rich variety of high value, low volume products, such as non-timber forest products and medicinal and aromatic plants. However, the primary producers and collectors of these products generally receive a relatively low share of the return due to limited access to markets and credits, insufficient knowledge of the market chains, lack of processing facilities, and inadequate quality control. There is a need to ensure participation of the local communities through value chain development in order to increase their incomes.

In India, KSLCDI has identified potential value chains in selected pilot sites that have been prioritized for upgrading and promotion through product development and improved market linkages. These value chains include chyura honey, value-added products from chyura butter (soap, lip balm, etc.), off-season vegetables, kidney beans, and bamboo handicrafts. These products were selected based on their potential for pro-poor value chain development, existing and potential markets, and environmental sustainability of production and trade.



Off-season vegetable value chain in the selected KSL project sites

The production of off-season vegetables is being promoted in two villages – Jajurauli and Bans – of Bin block in the Chandak-Aonlaghat micro-watershed. The total population is 425 in Jajurauli (220 women and 205 men), and 2,100 in Bans (927 women and 1,173 men). Agriculture and livestock keeping are the main sources of livelihood for these people. In addition to traditional food crops such as wheat, rice, maize, potato, and pulses (black gram, horse gram, soybeans, and lentils), farmers in these villages also cultivate seasonal vegetables. These crops provide them with cash income in addition to wage labour.

Unlike traditional agriculture that is not economically gainful, vegetable production has become an important source of income for local farmers. The most commonly

What are off-season vegetables?

Off-season vegetable farming refers to the production of vegetables before or after their normal season of cultivation. This is accomplished by using different agro-climatic conditions, adjusting the planting time, select and improving varieties, and creating a controlled environment (with plastic tunnels, polythene houses, or permanent glass houses).

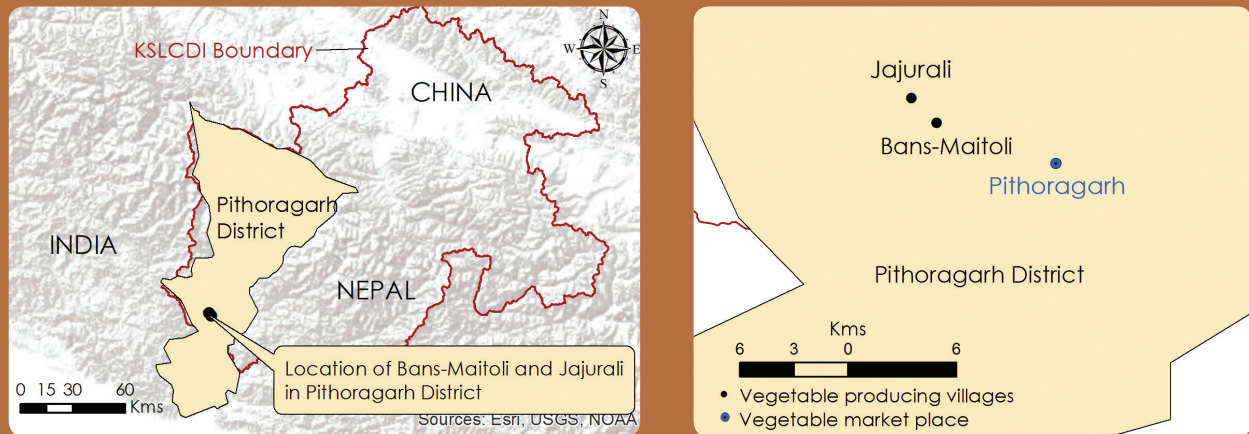
In this context, the production of off-season vegetables in the mountains refers to growing vegetables when they are off-season to the markets they are usually sold in. If vegetable is sold from the mountains into the plains or markets of different altitude of India, this is often due to the agro-climatic differences of the hills and plains, which makes these vegetables also off-season for the plains.



cultivated vegetables include tomatoes, capsicum, cabbage, peas, okra (lady fingers), brinjal, potato, ginger, onion, and garlic. Nearly 50% of the total 528 households in the area are engaged in the cultivation of seasonal vegetables, producing over 27,100 kg of different vegetables, out of which nearly 20,000 kg are sold in the market. A household generally sells 8–35 kg of different vegetables depending on the plot size it puts under cultivation earning a cash income of around 6,190 INR (USD 100) per household per year. The price of different vegetables varies between INR 12 to 40 rupees. Onion sells for – lowest price of – 12 a kilogramme while ginger and garlic fetch the highest price (INR 40); capsicum sells for INR 25 and tomato for INR 20 a kg; and other vegetables (cabbage, okra, potato) sell for INR 15 per kg in each of the villages. The market for these vegetables is about 15 km from Bans and 20 km from Jajurauli.



Figure 1: Map of off-season vegetable pilot sites



KSLCDI aims to enhance the capacity of farmers to increase the production and profitability of these vegetables, especially by engaging them in off-season vegetable production using organic inputs. Off-season vegetables have a lot of potential to bring in additional income as they sell at much higher prices.

To do this, the project organizes farmers into groups, promotes organic and green production practices, and facilitates the provision of high quality vegetable seeds. In addition, polytunnels for nursery raising and polyhouses for vegetable cultivation are provided at subsidised rates. Improved organic farming technologies, for example organic manure production from vermicomposting and integrated pest management are also being promoted in the project sites. Improved access to information by farmers is also a key component of the project's intervention.

Case study of Darshan Singh

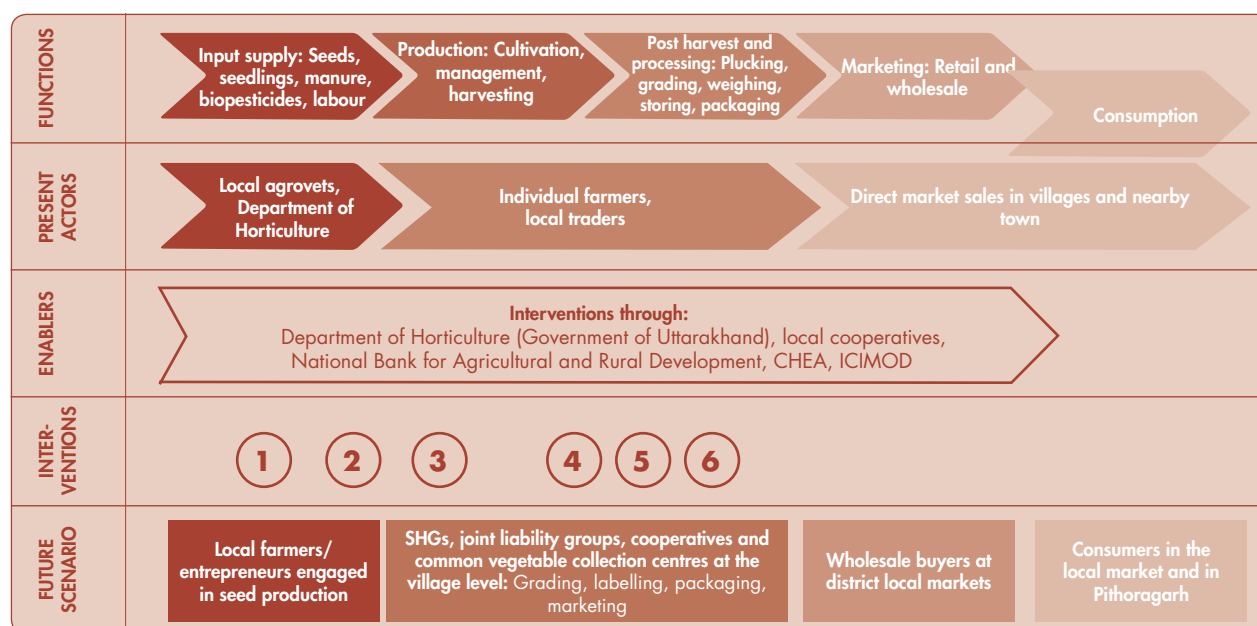
The Central Himalayan Environment Association (CHEA) carried out a pilot study on the use of hybrid seeds for off-season cultivation. Darshan Singh, a progressive farmer from Bans village, was keen to take part in the study. He had been practising agriculture using traditional methods that he learned from his ancestors. His major challenges in the cultivation of off-season vegetables were pests and diseases, which made his venture less profitable.



He received technical training in using green techniques and inputs like organic manure and integrated pest management in off-season vegetable cultivation and went on to expand his vegetable plot. Off-season vegetable cultivation is carried out at a commercial level. CHEA – the Kailash implementation partner in the hills of Uttarakhand – provided hybrid vegetable seeds and other inputs such as environmentally safe pesticides, polytunnels, and polyhouses and trained Mr Singh in moveable vermi-beds to produce organic compost. Mr Singh benefited from this and increased his tomato growing area from half a nali to two nali (0.01 to 0.02 ha). CHEA provided tomato seeds of two hybrid varieties: Manisha and Himsona. This has improved the production tremendously, and this year Mr Singh hopes to harvest approximately 1,000 kg of produce to sell in the Pithoragarh market by the end of the season. He has already sold three quintals for a total of INR 6,000 (USD 100). He also cultivates chillies and capsicum in his polyhouses.



Value addition steps in the off-season vegetable value chain in KSLCDI



Off-season vegetable value chain interventions and upgrading strategies in KSL-India pilot villages

1	Improvement of seed quality: High-quality seeds have been accessed at subsidized costs from the Department of Horticulture.
2	Provision of technically effective agricultural equipment for off-season vegetable cultivation: Provision of polytunnels for vegetable sapling nurseries, polyhouses for off-season vegetable production, and vermicomposting techniques are basics for off-season vegetable production. Twenty polytunnels and 20 polyhouses have been provided to 20 households in the pilot villages. In addition, 100 vermi-composting units were provided to households from 6 SHGs in Bans and 9 SHGs in Jajurali village.
3	Capacity building: Through trainings, exposure visits, and the provision of experience sharing avenues, farmers are gaining skills in off-season vegetable production, particularly on principles of organic farming. Focus has been given to including women and the poor in value chain development by encouraging their participation in joint liability groups and building their capacities through training, exposure visits, and the provision of material and equipment. By organizing workshops to identify constraints in vegetable production, intervention plans were designed with the farmers. This is coupled with trainings on climate adaptive tools and practices for water conservation. Water and energy issues are being taken care of by introducing technologies like roof water harvesting, providing support for the use of biogas units, and by improving linkages with concerned government outlets.
4	Mobilization of farmers into self help groups and joint liability groups and organizing common collection centres: Nine SHGs in Jajurali and six SHGs in Bans village formed earlier were adopted and off-seasonal vegetable cultivation was promoted. Common vegetable collection centres have been established near the road head in each of the two selected villages where collection, weighing, and grading of the harvested vegetables is planned. SHGs are in charge of running the collection centres. Further to this cooperatives will be developed to enhance common bargaining strength.
5	Facilitating access to information and credit: Farmers will be linked to information service providers to gain access to information on quality inputs, weather, market prices, through linkages with government institutions, NGOs, and the private sector. Financial resources will be accessed through linkages to banks for microfinance.
6	Product certification and promotion: Trainings on post-harvest and processing techniques have been held to improve product handling and packaging for effective marketing. There are plans to certify these vegetables, and the Uttarakhand Organic Commodity Board was activated to provide information on vegetable certification process to SHGs.

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