



# Informal Actors Linking Highland Fruits and Vegetables to Lowland Markets

The Case of Chitral District in Northwest Pakistan



**WAGENINGEN**  
UNIVERSITY & RESEARCH

wur.eu

## Colophon

### Authors

Hakim Khan<sup>1</sup>

Reviewed by: Ted Schrader<sup>3</sup>

<sup>1</sup> Agri-Support Services (PVT) Ltd, Pakistan, <sup>2</sup> Wageningen University and Research, Wageningen Centre for Development Innovation, The Netherlands

### Photography

Sergey Bezgodov/Shutterstock.com (cover), Emaad Paracha CC BY-SA 4.0/Wikimedia Commons (p3), Hakim Khan (p4), Shahzad Ahmad/Flickr.com (p6)

Naresh Kumar Nain, Thies Reemer, Dereje/Shutterstock.com, David Obiero (back cover)

### Design

Erika Endrődiné Benkő

This case study is part of the informal economies trajectory of Wageningen University and Research together with alumni from different countries in Africa, Asia and Latin America (KB-35 programme 2023–2024).

This report can be downloaded for free at <https://doi.org/10.18174/678997>

© 2024 Wageningen Centre for Development Innovation, part of the Stichting Wageningen Research. P.O. Box 88, 6700 AB Wageningen, The Netherlands. T+ 31 (0)317 48 68 00, E info.cdi@wur.nl, [www.wur.eu/cdi](http://www.wur.eu/cdi).



Wageningen Centre for Development Innovation uses a Creative Commons Attribution 4.0 (Netherlands) licence for its reports.

The user may copy, distribute and transmit the work and create derivative works. Third-party material that has been used in the work and to which intellectual property rights apply may not be used without prior permission of the third party concerned. The user must specify the name as stated by the author or licence holder of the work, but not in such a way as to give the impression that the work of the user or the way in which the work has been used are being endorsed. The user may not use this work for commercial purposes.

The Wageningen Centre for Development Innovation accepts no liability for any damage arising from the use of the results of this research or the application of the recommendations.

Report WCDI-24-387



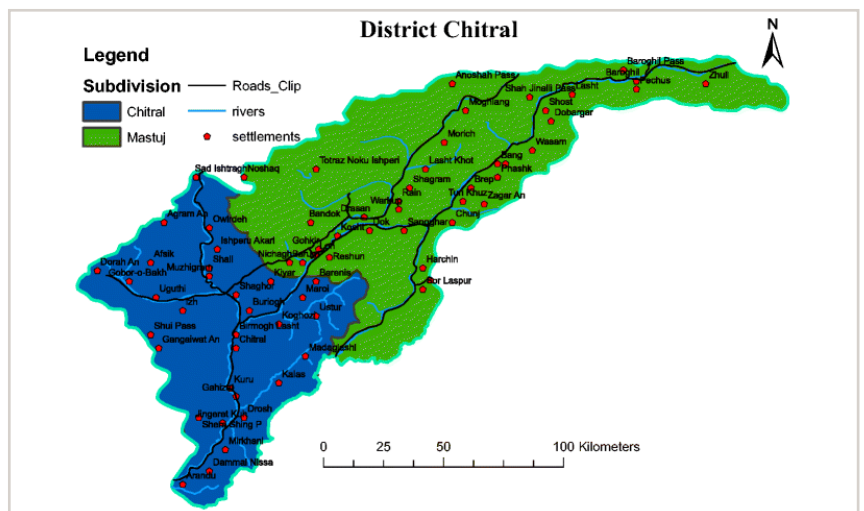
This article outlines how informal actors contribute to vegetable production and marketing, linking highland Chitral District in Northwest Pakistan to lowland consumer markets. They facilitate income generation in the remote mountainous communities and support diet diversification and year-round availability of vegetables and fruits in lowland areas. There is however much untapped potential to better link highlands and lowlands and to develop specific value chains for fruits and vegetables that are in high demand in lowland urban centres.

## Food system context

Chitral District, known as one of the most mountainous districts in the world, is located in the northernmost part of Pakistan (Khyber Pakhtunkhwa Province). The cultivated land is mostly on slopes and valleys scattered in distant areas linked with poor road infrastructure. Depending on snowfall, roads to the lowlands are open between May and November. In summer, the Lawari pass connects the highland valleys to lower neighbouring districts. In winter, Chitral District is isolated because the pass is closed due to heavy snowfall.



**Figure 1:** Approximate location of the former princely state of Chitral within Pakistan. Source: [https://en.m.wikipedia.org/wiki/File:Chitral\\_map.png](https://en.m.wikipedia.org/wiki/File:Chitral_map.png)



**Figure 2:** Site map of district Chitral showing boundary and different valleys. Source: [www.researchgate.net](http://www.researchgate.net)

Farmers, who cultivate crops on slopes and in valleys have limited farm holdings. They mainly rely on primary food crops (maize, wheat, rice and potatoes), fodder crops for their animals, and on fruits and vegetables. The scenic valley of Chitral is well-known for its high-quality natural fruits and natural off-season vegetables. Garam Chasma, Boni and Mastuj are the major vegetables and fruit growing areas and trading centres in Chitral District. Most agricultural production is for self-consumption and for some sales on local markets.



**Figure 3:** Chitral scenery with lowland and highland areas.

# Challenges and opportunities of the fruits and vegetables sector

Also fruits and vegetables are mostly grown for own-consumption and partially for sale at local markets. Production is low because of poor land use, limited availability of seeds and inputs and poor agricultural practices and limited market-orientation of farmers. Costs of transport to national markets are high. There is a lack of storage infrastructure and post-harvest losses are high.

In the main vegetable production season (June–November), farmers do not receive attractive prices for commodities that also do well in the lowlands, due to an abundant supply. There are however three important opportunities that can be better harnessed. Fruits and vegetables from Chitral can have comparative advantage in lowland markets, because of agro-ecology, seasonality and quality:

- **Agro ecology:** Chitral District is famous for the fruits it can produce at the higher altitudes: Apples, pears, apricots, peaches, mulberries, damson, persimmon and pomegranates. Walnuts are also very important. At the end of summer, the whole region is decorated with flowers and fruits.
- **Seasonality:** In summer, Chitral has competitive advantages for winter products which naturally grow the highland region. During the same period, main horticultural crops (potatoes, peas, cauliflower and cabbage) are scarcer, and prices are higher.
- **Quality:** Chitral can supply fruits and vegetables for organic niche markets because synthetic chemicals are hardly used.

The question is: Can these opportunities be harnessed to the benefit of the highland population? To answer that question, we first looked at the actors currently involved in fruit and vegetable production and marketing and at current food system outcomes.

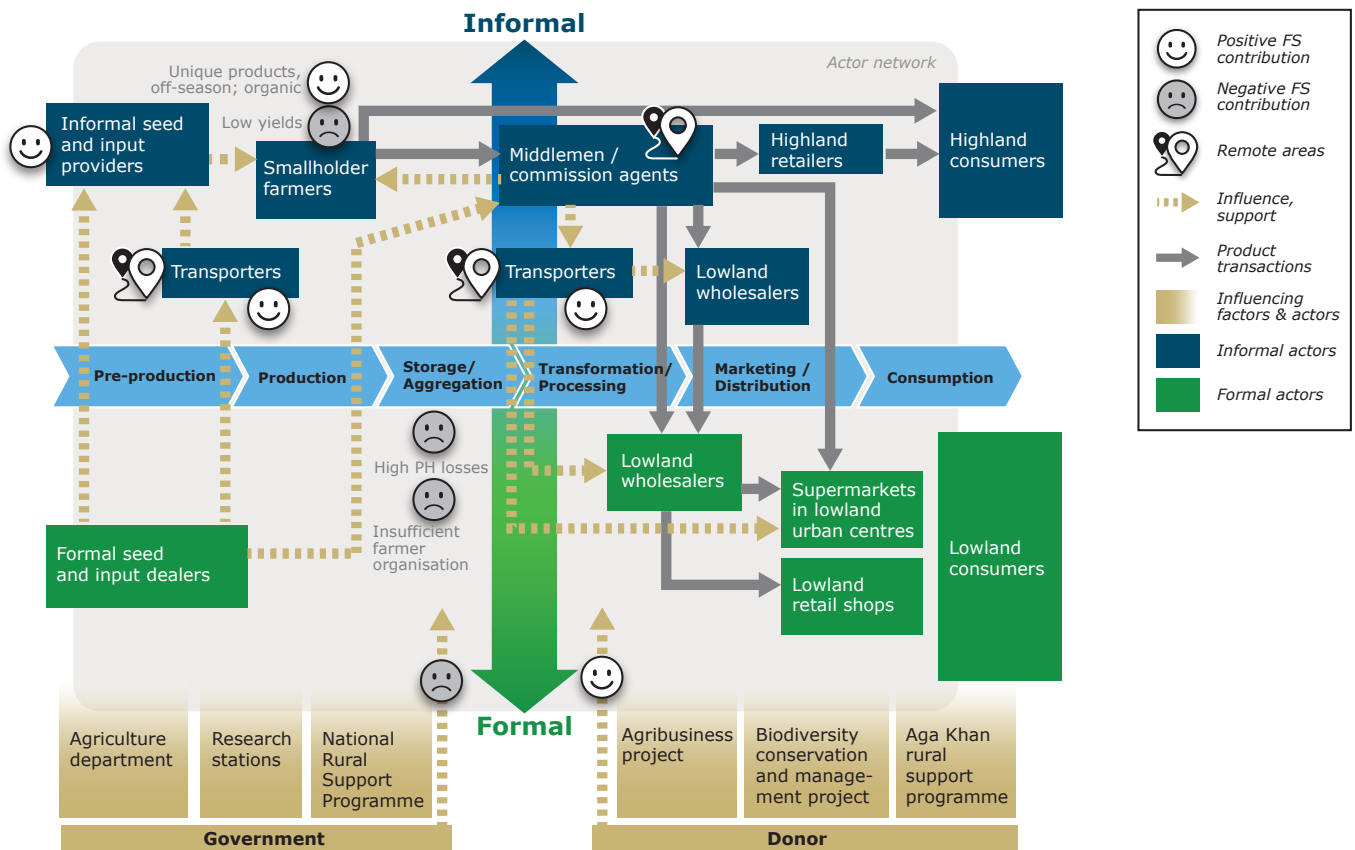
## Informal- and formal actor networks

The figure on the next page shows the main actors involved in fruit and vegetable production and marketing in Chitral District. Smallholder farmers do not have direct market linkages, except for small sales at local markets. There is a large (physical and social) distance between highland producers and lowland consumers, which is bridged by middlemen, commission agents and transporters.

In fact, informal private sector actors currently play the major role in connecting the highlands to the lowlands. More than 95% of the farmers' produce sold is through middlemen and Commission Agents at the farm gate. This is, as such, a huge contribution to the organisation and the logistics of fruits and vegetables trade. However, the middlemen offer farmers low prices and take high profits. Middlemen must however face high transport costs and take risks (losses and waste). Middlemen and Commission Agents use transports to deliver to retailers in the highlands and to wholesalers and supermarkets in the lowlands.



**Figure 4:** Farming in the valleys of Chitral, Pakistan.



**Figure 5:** Actor network — fruits and vegetables, Chitral District, Pakistan.

Because of the long distances between high and lowlands, transporters play a crucial role in bringing lowland products to the highlands and highland products to the lowlands.

Transporters, middlemen and grocery store owners act as informal agro dealers, making seed and inputs available to at least some of the highland farmers, mainly in the most important production zones around Garam Chasma, Mastuj and Boni. They buy inputs from lowland suppliers. Whereas their prices and margins are high, the seeds and inputs are often not of good quality.

In the highlands, the retail of fruits and vegetables is at small markets and in small shops. In the lowlands, the retailers buy the produce from the commission agents of the national markets, because the highland products are high value fruits and vegetables. More than 70% of the total produce goes to supermarkets due to their natural off-season production.

According to the local stakeholders, Government support (through agricultural extension departments and research institutes and stations) hardly reach the remote mountainous areas and have had minimal impact, on production improvement, access to seeds and inputs, or promotion of value creation and marketing. Some donor-assisted programs have had more impact and have changed the agricultural landscape of Chitral District, especially the agribusiness and biodiversity projects.



# Current food system outcomes

Informal economy actors have a major contribution in connecting the supply and market of the highlands and the lowlands. Yet in the prevailing stakeholder roles and collaboration there are many gaps and outcomes are not satisfactory. Farmers have low yields due to the limited availability of quality seeds and inputs in the area. Chitral District does not realise its potential to produce much more, even though there are positive push and pull factors (agro-ecological highland production conditions, high market demand for highland fruits and off-season vegetables in the lowlands). The year-round high demand for fruits and vegetables, particularly in major lowland urban centres is not satisfied. The specific high-value market of growing urban middle classes is insufficiently reached. This consumer group is changing its dietary patterns, because of increased importance of packaged convenience food, and higher awareness about the health benefits of fresh fruits and vegetables (as a source of vitamins, carbohydrates, salts and proteins).

## What if the informal actors were not there?

It is clear that in the current situation it is mainly the informal input suppliers and informal middlemen, commission agents and transporters who are connecting the highlands to the lowlands, and vice versa. Without these informal actors, there would be less fruits and vegetables available in lowlands, especially during the off-season, and less income-generating options for farmers and communities in the highlands.

If farmers could directly do business with input providers, traders, wholesalers and supermarkets, then their costs for seeds and inputs could be lower and the prices they get for their products could be higher.



**Figure 6:** A truck transporting people and goods in the mountains of Chitral District, Pakistan.

---

# What can be strategically and practically done to grasp the opportunities?

The major strategic challenge and opportunity is to raise highland production of fruits and vegetables that are in demand in the lowlands and to connect farmers and communities better and more profitably to the lowland markets.

It is recommended to:

- Promote specialisation on highland commodities (apples, pears, apricots, peaches, mulberries, damson, persimmon, pomegranates, walnuts etc.), which is also grown in lowlands but the Chitral produce come to the market late, so get high price due high demand.
- To plan production of major horticultural crops (potatoes, peas, cauliflower and cabbage) for selling during the lowland off-season. This requires timing of production, choice of varieties and investment in storage and conservation.
- Supply fruits and vegetables for high-value markets, both for middle class consumers in urban supermarkets and specific organic niche markets.

This strategy requires a pro-active facilitating role of the Government for local economic development in the highlands in general, and for the organisation, entrepreneurship and empowerment of farmers and the collaboration of informal- and formal value chain operators in particular.

We recommend the following practical actions:

- Promote collaboration of farmers and communities with Government services and donor-supported projects. Ensure that these are working on the priorities of local communities.
- Capitalise on the current role of informal agro-dealers: discuss challenges and opportunities with them, make an inventory of farmers' seed and input needs (specifically for the range of fruits and vegetables that are produced) and connecting the local (informal) agro-dealers to formal agro-dealers. The outcome should be access to affordable seeds and inputs of reliable quality.
- Promote the establishment of local farmer groups, both for collective procurement of seeds and agro inputs, for bulking and storage of agricultural products and collective marketing. This would improve farmers' bargaining power and would reduce transaction costs. The organisation of farmers can be built on the existing social capital. Farmers, living in isolated communities under hardship conditions already support each other. There is potential to organise farmers in clusters. Some few farmers' organisations are active and can be a starting point. Priorities are training on crop management, record keeping and linking for farmer enterprise groups to lowland markets, wholesalers and supermarkets.
- Promote, via demonstrations and farmer-to-farmer communication the application of good agricultural practices to improve yields and quality.
- Invest in soil analysis for defining optimal soil fertility management practices (including fertiliser rates) and invest in tailored recommendations for prevention and control of pests and diseases, and prevention and control of erosion.
- Promote early communication between farmers' and communities on the one hand and brokers, transporters and traders on the other hand, for the planning of production and marketing season, including logistics.
- Facilitate direct linkages of highland communities and farmers' organisations to off-takers in the lowlands, among others through exchange visits and the use of ICT (mobile phones, WhatsApp groups, mobile money). This is the basis for value chain development that connects the highlands and lowlands.



---

Wageningen University & Research  
P.O. Box 47  
6700 AB Wageningen  
The Netherlands  
T +31 (0) 317 48 07 00  
[www.wur.eu](http://www.wur.eu)

The mission of Wageningen University & Research is "To explore the potential of nature to improve the quality of life". Under the banner Wageningen University & Research, Wageningen University and the specialised research institutes of the Wageningen Research Foundation have joined forces in contributing to finding solutions to important questions in the domain of healthy food and living environment. With its roughly 30 branches, 6,800 employees (6,000 fte) and 12,900 students, Wageningen University & Research is one of the leading organisations in its domain. The unique Wageningen approach lies in its integrated approach to issues and the collaboration between different disciplines.

---