Agriculture Sector Profile

Nepal’s population was at 28.01 million as of 2018, and 80% live in rural areas and depend on agriculture as a source of livelihood.\(^1\) Gross per capita income continues to grow and reached $960 in 2018 from $230 in 2000.\(^2\) There is a remarkable contrast in population density. For the country as a whole, there are 210 inhabitants per square kilometer (km\(^2\)). In Kathmandu City, there are 19,900 inhabitants/km\(^2\); and in Kathmandu agglomeration area of the Valley, 13,800. The population of Kathmandu grows at a higher rate than the overall rate of the country, implying increased pressure on the agricultural network to channel food from rural to urban areas.

From east to west, Nepal is divided into three ecological belts or physiographic areas: mountains, hills, and terai.\(^3\) These areas are bisected by major rivers in the country. The World Bank reports that as of 2016, total agricultural land is about 4.1 million hectares.\(^4\) As of 2010, the share of irrigated land was about 30%. Nepal has five seasons: spring, summer, monsoon, fall, and winter. It has five climatic zones: (i) tropical and subtropical zones below 1,200 meters (m); (ii) temperate zone at 1,200–2,400 m; (iii) cold zone at 2,400–3,600 m; (iv) subarctic zone at 3,600–4,400 m; and (v) arctic zone above 4,400 m.

The structure of the agriculture sector is dominated by rice production (Figure 1). As of 2014, the share of rice in total cultivated area was 48%, fruits and vegetables accounted for 13%, while other crops accounted for 39%.\(^5\)

The country produced 3.7 million metric tons (MT) of vegetables in 2016, up from 3.2 million MT in 2011, for a growth of 15.2%. About 84% of this growth was contributed by growth in yield while the rest was contributed by growth in cultivated land. Although the performance of the agriculture sector has improved through the years, fruit production decreased to 0.98 million MT in 2016 from 1.03 million MT in 2011. This negative growth is attributable to negative growth of yield.

For the period 2011–2016, cultivated areas for onion slightly increased, but overall production decreased due to decline in yields. During the same period, about 65% of total growth of tomato production was contributed by growth in cultivated area while the rest was contributed by growth in yield. For the growth in production of potato, 82% came from cultivated land while yield contributed 18%.

Overall yields of vegetables are still far from international standards. For example, potato yield (in tons per hectare [t/ha]) in Nepal is significantly lower than in European countries like Belgium, Netherlands, Spain, and Turkey, as well as the United States (US) (Figure 2). In fact, Nepal has the lowest yield of potato among the South Asian countries. Tomato yield in Nepal is relatively better compared to other South Asian countries; for instance, in 2016, Nepal had 17.2 t/ha compared to Bangladesh with 14.23 t/ha. In the same year, onion yield in Nepal was higher (11.9 t/ha) than in Bangladesh (10.52 t/ha), although lower than India (17 t/ha).

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3. Terai refers to the lowland area of southern Nepal.
5. These shares are derived using information from different sources and hence should be considered as approximations. According to ricepedia, the share of rice in total cultivated land in 2013 was 67% (http://ricepedia.org/nepal).
Nepal is mostly an importer of vegetables and fruits. India is Nepal's largest source of fruits and vegetables, accounting for more than 50% of Nepal's total imports, followed by the People's Republic of China. Main imports from India are tomato, potato, onion, and gourds. India is also the largest destination market for Nepal's exports of fruits and vegetables.

Regular diets in Nepal are heavily dependent on rice although rice has been declining in recent years with the increased consumption of fruits and vegetables. Nevertheless, daily consumption of fruits is still low in Nepal compared to Europe and the US (Figure 3). In 2013, per capita fruit consumption in Nepal was only 61 kilograms (kg) while it was 95 kg in Europe and 105 kg in the US.

However, per capita vegetable consumption in Nepal is at par with Europe and the US. For example, per capita vegetable consumption in Nepal was 114 kg compared to Europe at 115 kg and the US at 114 kg in 2013.

Current Horticulture Value Chain

Collection and Shipment

Traditional vegetable and fruit marketing is still dominant in Nepal. Most food products are still distributed through traditional channels using small local haat bazaars and retailers. The channel starts at the farm-gate and ends with the consumer. Middlemen collect produce from various places and deliver these to the wholesale markets (Figure 4).

In Nepal, regular marketing channels follow this sequence: from farmer to middlemen, to wholesalers, to retailers, and finally to consumers. The farmers use multiple market channels to sell their produce, which was not found to be influenced by season or type of vegetable being sold, but rather by the highest price offered.

The vegetable marketing channel has multiple value chain actors adding value or facilitating the flow along the way. After they are brought to wholesale markets by middle marketers, agricultural products are sourced by retailers or vegetable shop owners. The location of the market and the delivery location determine the number of steps before the produce finally reaches the consumer.

Nepal's vegetable market channel can be categorized as a loose channel wherein the producers have the option to sell to multiple buyers. A loose channel does not include contracts or formal purchase or sale agreements. Since farmers are not able to form a long-lasting relationship with the players, this limits the flow of credit, inputs, and information among the players, which was highly evident during the field survey. Although the farmers have a range of marketing options available, they do not necessarily benefit from this arrangement (footnote 7).

6 The overall value chain suffers from a number of domestic as well as external problems. However, the current brief focuses on the market channels only.

Research findings of BEED (footnote 7) show that wholesalers and importers or exporters are the largest players in terms of produce volume and value. Therefore, they have substantial influence over commodity prices. Since the wholesalers are generally the importers or exporters in the case of Nepal, they have control over supply distribution, which enables them to influence prices.

Moreover, the oligopolistic practices of large regional and terminal market wholesalers restrict the independent price adjustments in the market. Rather than normal demand and supply dynamics, artificially created supply shortages and overflows guide vegetable pricing. This results in unpredictable incomes for the farmers.

The vegetable market is highly price-sensitive, with buyers preferring vegetables that are cheaper. Nepali vegetables are comparatively more expensive than Indian vegetables as Indian vegetables benefit from subsidies and also have the advantage of higher yield and better infrastructure, thereby reducing production costs. Furthermore, Indian traders provide credit of 6–12 months, which is a major pull factor for traders in Nepal. The preference for Indian vegetables remains strong mainly because of the comparative cost benefits for both buyers and traders.

Nepal’s fruits and vegetable markets are not that well-developed and markets are congested and unhygienic. Major issues and concerns are as follows:

- too many intermediaries result in high cost of goods and services;
- inadequate market-led infrastructure for collection, storage, sorting, grading or postharvest management;
- private sector unable to invest in logistics or infrastructure under prevailing conditions;
- price setting mechanism not transparent leading to imbalance detrimental to farmers;
- market intelligence not generated and market information not easily accessible; and
- alternative marketing nontransparent, marked with less involvement of farmer or consumer groups.

Negative Impacts of the Current Value Chain

Because of the inefficiency of the current value chain, both seasonal and spatial price fluctuations of fruits and vegetables are high in Nepal. For example, the price of tomato varies from 30 Nepalese rupees (NR) to NR85 in 2017 (Figure 5). Figure 6 shows the fluctuations of prices of potato, onion, and tomato from 2000 to 2017. The annual cost of price fluctuations of fruits and vegetables is estimated at about $145 million.

The average annual wholesale price of potato during 2000–2017 is NR22/kg with a standard deviation of 11. During the same period, the average annual wholesale price of tomato was NR34, with standard deviation of 15; while that for onion was NR36, with standard deviation of 17. Postharvest losses in fruits and vegetables are very high due to mishandling of the perishables, poor transportation, inadequate storage facilities, lack of cold storage both at production areas and wholesale markets, and poor market infrastructure. A reduction of the current postharvest loss by around 75% would be equivalent to an annual saving of approximately $675 million (valued at export premium prices).

Due to low economies of scale, lack of synergies and collaboration among traders, high loading and unloading time, and high transportation cost, overall marketing cost is very high. A reduction of marketing cost by $0.025 per kilogram would save about $1.25 million annually in Kalimati Market alone.

Current Situation of the Main Wholesale Markets in Nepal

The situation of four wholesale markets in Nepal was analyzed, namely (i) Kalimati, managed by the public sector; (ii) Balkhu and (iii) Kuleshor, which are both private; and (iv) Pokhara, managed jointly by the public and private sectors.

Physical Limitations

All the markets lack both infrastructure and required investment. Some of the other generic problems faced are lack modern transportation, lack of storage facility including cold chain, missing quality control measure, and dearth of information. Entrance and exit points are directly linked with the main road, creating traffic congestion in the vicinity of the market. Private markets are managed better relative to the public markets despite facing similar problems.
Located in the heart of the city and surrounded by housing buildings, Kalimati Wholesale Market has no scope for expansion. The market is already congested and operating beyond its normal capacity. Commodities handled per square meter in this market was 0.74 MT in 1989, which increased to 10.01 MT in 2018.

Managerial Limitations

The current management of the wholesale market, particularly in the case of public wholesale markets, is too interventionist. The management board members are nominated by the government and thus discourages private investment. Although the private markets are managed by board members nominated from the investors, they lack managerial training and skill. The services provided by the management to the traders are very poor. The shared responsibilities of different actors within the management are not well-coordinated.

Poor Peripheral Infrastructure

Parking areas of the markets are very small, insecure, and haphazardly managed. The loading and unloading docks are poorly designed. The waste management system outside the market is missing and/or ineffective. The markets are unfenced. No cold storage is available in the vicinity of the wholesale markets. Refrigerated transport for perishables is yet to be introduced.

Financial Management

A market authority manages the financial affairs of public markets. Income of public markets comes mainly from licensing fees and monthly rents. Owners of the private markets collect the fees from traders.

Recommendations

Short-Term Measures

Several measures are identified through consultation with traders and operators. The most important one is the improvement of services by upgrading drainage, water, electric, and transportation systems; and building of testing facilities in the existing wholesale market. A thorough review of the current management and financing modalities should be undertaken to increase the operational efficiency of the existing market.

Long-Term Measures

The horticulture sector in Nepal has seasonal and spatial variation. Taking this variation into consideration, wholesale markets in the country should be custom-tailored in the light of local context rather than implementing same model everywhere. Simultaneous to the establishment of the wholesale markets, collection centers with cold chain and other agri-logistics have to be developed in the production area for farmers and small traders. These centers should also provide spaces for sorting, cleaning, grading, packaging, and storage. The location for these collection centers needs to be selected through proper review of the need and ease of access by farmers.

Since setting up one large wholesale market in the Kathmandu Valley is not feasible due to lack of available land, several relatively small wholesale markets at strategic entry points into the Valley should be established. Given the federalized context of the country, a decentralized approach should be taken to manage the wholesale markets although food safety and standard issues can be governed by same rules and regulations. The capacity of the local governments should be enhanced to manage existing as well as newly set up wholesale markets.

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