

TRANSITIONING TOWARDS FARMER-FRIENDLY MARKET: CASE STUDY OF KALIMATI FRUITS & VEGETABLE MARKET

A study conducted as a part of the Daayitwa Nepal Public Policy Fellowship 2023 in collaboration with Ministry of Agriculture and Livestock Development (MoALD)

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Abstract:

Intermediaries hold a pivotal role in the agricultural markets of developing nations, acting as essential agents for the collection, transportation, and sale of agricultural products. While these intermediaries offer convenience to farmers, they also introduce complex dynamics and potential vulnerabilities. Also, it is crucial to enhance farmers' access to markets, this progress should not come at the expense of farmers being exploited by intermediaries or the undervaluation of the critical services provided by intermediaries. This study, conducted between June and July 2023, studies the functioning of Nepal's Kalimati Market and India's Mandi system. It unveils vital insights into the distinctive dynamics characterizing these agricultural markets. Notably, the research underscores the risks associated with the absence of formal farming agreements for Nepalese farmers, who frequently rely on verbal contracts with intermediaries. In contrast, government regulated India's Mandi system encompasses protective regulations aimed at securing farmers' interests and rights. This study forms a fundamental resource for policymakers, researchers, and stakeholders alike to explore Nepal's agricultural markets into equitable and efficient systems.

Key words: agriculture markets, fair market, intermediaries, kalimati market,

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Abbreviations:

ADS	Agricultural Development Strategy
APMC	Agricultural Produce Market Committee
APMR	Agricultural Produce Market Regulation
FCI	Food Corporation of India
GDP	Gross Domestic Product
GoN	Government of Nepal
KFVMDB	Kalimati Fruit and Vegetable Market Development Board
MoALD	Ministry of Agriculture and Livestock Development
NPC	National Planning Commission
PRSP	Poverty Reduction Strategy Paper

1. Introduction

Majority of Nepalese population is still under poverty (about 25% of the population)¹. Most of these poor people live in the rural area, and their poverty is connected to the fact that farming and rural areas growth is stagnant. Several agricultural specialists have been discussing the problems that prevent the nation from attaining enhanced agricultural efficiency in Nepal for a considerable period. These challenges encompass factors such as small-scale farming, limited road connections between urban and rural areas, inadequate availability of cost-effective farming technologies, substantial reliance on seasonal rainfall and limited markets for agricultural products². As a result, there are many research papers primarily concentrated on issues concerning agricultural production and productivity. However, the focus of this particular paper will shift to the subsequent phase following production in the farm. Specifically, the paper will address the crucial matter of enhancing farmers' access to markets, aiming to explore ways in which this aspect can be improved.

In Nepal, the agriculture market is a combination of traditional and modern market channels. The traditional market directly connects the farmers to the consumers, which often takes place in local markets or roadside stalls. Next one is the wholesale market as intermediaries between farmers and retailers. They are usually located in urban centers and act as collection points where farmers bring their produce to sell in bulk. Wholesale markets facilitate price discovery and aggregation of products, allowing farmers to access larger markets and buyers. Also, cooperative market systems have gained prominence in recent years as a means to empower farmers and strengthen their market access. Agricultural cooperatives, or "krishak sahakari," bring farmers together to collectively market their products, negotiate better prices, and access credit facilities. During the journey from farmers to consumers, agricultural products transform in form and price through a series of stages, with intermediaries playing a crucial role in facilitating the transfer from farm gates to consumers (Ellis et al., 1997).

¹ <https://moald.gov.np/wp-content/uploads/2023/02/ADS-Final-English-Part-1-2-combined.pdf>

² <https://samriddhi.org/publications/commercialization-of-agriculture-in-nepal/>

“During the field study the researcher found that price of one kg radish was Nrs 4 for at farm gate, Nrs 8 at auction yard, Nrs 10-15 at wholesale, Nrs 20-25 at retail within Kalimati Market and Nrs 45 at local retailers in Samakhushi, Kathmandu on 25th July 2023.”

In the trade of agricultural goods, multi tiered supply chains are most prevalent Especially when dealing with highly perishable items like vegetables and fruits, there exists a notable risk of these products deteriorating during transportation and storage. Consequently, intermediaries play a crucial role in protecting small-scale farmers from potential losses and aiding them in achieving improved profit margins(Lyon, 2000). However, farmers often lack direct links with wholesalers, retailers and instead rely on middlemen such as traders and exporters, which reduce their bargaining power and profitability. They struggle to access market information on prices, demand trends, and consumer preferences. Despite the essential function intermediaries fulfill in offering marketing services, especially to small-scale farmers, agricultural policymakers in numerous developing nations have often inclined to view them as exploitative entities that unreasonably profit from the sale of crops. This perception arises from intermediaries capitalizing on small farmers' limited knowledge of market prices (Ellis, 1993).

Furthermore, rather than prioritizing market demand and making informed production decisions, farmers often opt to sell their surplus products without due consideration. They face challenges in making well-informed choices regarding crop selection, production planning, pricing strategies, and the timing of entering the market, limiting their competitiveness³. And limited market access restricts farmers' income-generating opportunities, resulting in reduced investment in agriculture, lower adoption of modern technologies, and decreased agricultural productivity (Chaudhary, 2018). This, in turn, impacts employment, food security, and overall economic growth in the country(Gc and Hall, 2020a). However, it should also be noted that farmers production capacity majorly influences the farmer’s choice of market channel (Abate et al., 2019)

This fellowship program focused on promoting a friendlier market system by improving their access to the market. The program's main study area is the Kalimati Market, one of Nepal's largest wholesale markets. It also included the study of the Mandi system, which is a traditional marketing and trading system in India, to strengthen market access for farmers. It is a government-regulated

³ http://naes.org.np/downloadfile/Proceedings%205th%20international_27_05_2019.pdf

market that acts as a platform for farmers to sell their produce directly to consumers. By providing a transparent and fair marketplace, the system can help farmers earn better returns on their produce and encourage them to adopt modern farming methods.

To achieve the research objectives, we addressed the following specific questions:

Q1. How can we improve farmers' access to the Kalimati wholesale market?

The first question aimed to examine strategies that could be implemented to improve farmers' accessibility to the Kalimati wholesale market. Through this inquiry, we delved into the existing challenges faced by farmers in accessing the market and also identified potential opportunities that could be harnessed to overcome these obstacles.

Q2. How is the mandi system operating in India and exploring relevancy in Nepal?

The second question aimed to provide a comprehensive understanding of how the mandi system operates in India. By delving into the intricacies of this government-regulated system, we aspired to draw valuable insights that could shed light on the feasibility and relevance of implementing a similar system within the Nepalese context. This comparison allowed us to gauge the potential benefits of adopting such a system in Nepal.

2. Literature Review

2.1 Agriculture policies in Nepal

While agriculture makes a significant contribution to the national Gross Domestic Product (GDP), its share has been decreasing over the years (Chaudhary, 2018). Nepal's agriculture sector accounted for only 23.95 percent of its Gross Domestic Product (GDP) in fiscal year 2022 compared to 24.9 percent in fiscal year 2021⁴. In order to effectively promote a farmer-friendly market system, it is imperative to address policy and regulatory constraints. The agriculture policies of the Nepal Government highlight the importance of agriculture development by protecting and promoting the rights and interests of peasants. It aims to ensure farmers have access to markets with fair prices for their produce (Khanal et al., 2020). In 1995, Nepal adopted a 20-year Agriculture Perspective Plan (APP) aimed at accelerating agricultural growth for sustainable poverty reduction. The 10th Plan (2002-2007) and the Poverty Reduction Strategy Paper (PRSP) emphasized poverty reduction through agricultural development. This transition to commercialized farming generates produce primarily for the market. Disseminating accurate marketing information is crucial for farmers to make informed decisions, minimize marketing costs, and enhance their share of consumers' spending. The Agriculture Development Strategy (ADS) for the period of 2015 to 2035 has been formulated with the aim of creating a favorable environment for the commercialization of the agricultural sector and enhancing farmers' access to markets. It focuses on developing market infrastructure, promoting contract farming, establishing farmer markets, and facilitating linkages between producers, processors, wholesalers, retailers, and exporters. Enhancing farmers' access to agricultural resources such as land, credit, seeds, fertilizer, advanced technology, irrigation, and markets is essential, benefiting individuals across gender and socio-economic spectrums in all geographical areas. Achieving this goal entails establishing efficient markets, a robust extension system, infrastructure development, and effective systems for delivering agricultural inputs, as emphasized in other sections of the Agricultural Development Strategy (ADS)⁵.

⁴ https://www.mof.gov.np/uploads/document/file/1674635120_Economic_Survey_2022.pdf

⁵ [ADS-Final-English-Part-1-2-combined.pdf \(moald.gov.np\)](#)

2.2 Population involved in agriculture

As indicated by the Nepal Labor Force Survey, the proportion of the population involved in agriculture was 73.9% in 2008 and reduced to 60.4% in 2018⁶. Also there is extensive male dominated youth migration seen in Nepal in recent years (Bossavie and Denisova, 2018). This migration of youth is resulting in a shift in village demographics, with a larger proportion of women, children, and elderly residents⁷. With more than 80% of women employed in agriculture, their role in the sector is pivotal (Dangol, 2010). However, the majority of rural women face precarious employment conditions, often engaged as subsistence agricultural producers. The traditional division of labor has shifted, as many women assume additional roles like plowing and marketing, attributed to the out-migration of rural men for employment (FAO, 2019). Women make a large share in the agriculture workforce, therefore it is crucial for women to have access to the skills, knowledge and financial authority to improve their efficiency (Paudel et al., 2020). Furthermore, the inflow of remittances resulting from outward migration serves as another influential factor contributing to the decline in agricultural involvement, consequently leading to a scarcity of labor in the farming sector. (Gc and Hall, 2020c). Moreover, youth are less attracted in the agriculture sector due to higher risk and comparatively narrow profit margin in this sector; and to make them more confident and to support their aspirations regulatory interventions should be carried out (Giuliani et al., 2017). Therefore, it is necessary for farmers to actively participate in the market, gain access to input suppliers and service providers, and have the ability to secure credit facilities to achieve profitable agriculture production. (Kumar et al., 2020).

⁶ https://cbs.gov.np/wp-content/uploads/2019/04/NLFS-III_Final-Report.pdf

⁷ <https://moald.gov.np/wp-content/uploads/2023/02/ADS-Final-English-Part-1-2-combined.pdf>

2.3 Agriculture Land structure

Agricultural land distribution displays a notable imbalance, with the majority of small-scale farmers utilizing just 18% of the total land, often holding less than 0.5 hectares each, below the national average of 0.7 hectares (CBS, 2014). Conversely, large farms, encompassing 22% of the land, operate over 2 hectares. Medium-sized farms, covering 60% of land, possess holdings ranging between 0.5 and 2 hectares (CBS, 2014). The rural-urban divide amplifies land fragmentation, potentially posing challenges for adopting modern technologies. Approximately 53 percent of the total agricultural land area is under irrigation (CBS, 2014).

2.4 Agriculture Market

In general, agricultural marketing involves various activities such as purchasing, selling, storing, processing, standardizing, certifying, and distributing farm products (Rehman et al., 2014). One of the major challenges Nepalese farmers experiences is difficulty in accessing markets directly by farmers, which reduces efficiency and profitability of selling produce (Khanal et al., 2020). Gc and Hall, 2020b shared that to tackle this issue, a pivotal solution involves the creation of locally supervised market infrastructures that establish connections between traders and farmers. Ensuring that farmers have access to pertinent information regarding market requirements, pricing, and production is of utmost significance. The advancement of local markets holds the potential to mitigate sales uncertainty, thereby optimizing revenue and profits derived from crops. Another factor that adds to this situation is the limited involvement of private businesses in the field of agriculture. Investment in agriculture and agribusiness encounters various impediments, such as the absence of appropriate policies like contract farming, lack of promotion of enterprises, weak cooperatives, insufficiency of service infrastructure to facilitate value chain development (e.g., agribusiness incubators, agroindustrial parks), low coverage of agricultural insurance, and an absence of a transparent and stable tax framework and incentives to promote innovation and risk mitigation. The pivotal challenge revolves around devising strategies to amplify sustainable and lucrative investments in agriculture and agribusiness, which could, in turn, expedite the modernization and growth of the agricultural sector⁸. Contrarily, involvement of government or

⁸ <https://moald.gov.np/wp-content/uploads/2023/02/ADS-Final-English-Part-1-2-combined.pdf>

semi-government in marketing certain crops instead of assisting farmers who struggle with bargaining capability, actually made things worse for them (Banskota and Sharma, 1999)

2.5 Agriculture Intermediaries

Intermediaries, who buy goods directly from farmers play a crucial role in marketing services, especially benefiting small-scale farmers in developing nations. These intermediaries help mitigate the substantial transaction expenses that would arise if these farmers had to transport limited quantities of their produce to market centers for selling (Bingen et al., 2003). Especially when dealing with highly perishable goods like vegetables and fruits, there exists a notable danger of these products deteriorating during transit and while being stored at diverse market hubs. Intermediaries invest substantial time and financial resources in procuring products from farmers and delivering them to wholesalers and retailers. Consequently, intermediaries serve as a protective measure for small-scale farmers, mitigating potential losses and enabling them to attain enhanced profit margins (Gandhi et al., 1999). However, marketing intermediaries continue to be perceived as individuals who heavily exploit uneducated farmers⁹. If marketing intermediaries are indeed taking a significant portion of the earnings from agricultural products due to the farmers' lack of bargaining strength, limited market price awareness, and high costs per unit sold, setting up marketing processes through farmers' groups can be a substantial solution, although this is a challenging endeavor. By forming these groups, small-scale farmers can enhance their negotiating ability and establish a system for sharing market information, thereby reducing the possibility of intermediaries manipulating price information and increasing the proportion of their earnings. These groups could sell their agricultural goods directly to wholesale traders instead of through intermediaries, arranging the transportation themselves. When products are transported and marketed in larger quantities, farmers can attain greater benefits (Bingen et al., 2003).

2.6 Traditional agriculture market system in India

India has a long tradition of periodic markets, most of these are held in rural areas. Rural Primary Markets (RPM) include mainly periodic markets like Haats, Shandies, Mandis, Painths and Fairs. It is estimated that there are 20,000 to 45,000 of these markets in the country, mostly for small and marginal farmers for marketing their farm produce and purchasing inputs also (Rehman et al.,

⁹ <https://kathmandupost.com/money/2022/04/08/middlemen-rake-it-in-while-farmers-and-consumers-suffer>

2014). Agricultural produce is sold in these markets by the following methods. Mandi system prevailed in India for decades and is even now practiced in most of the agricultural producing states of India, where prices of the produce are settled by the buyer and the commission agent of the seller (I C et al., 2014).

3. Methodology

This research adopts a qualitative method to study the ways to promote the farmers' friendly market in Nepal. In order to collect data, I conducted desk reviews and stakeholder interviews, in addition to a thematic analysis. These methods will allow us to gain a deeper understanding of the challenges and opportunities that exist in the Nepalese agriculture sector and to identify potential strategies for improving market access for farmers.

Research duration: June 2023 to August 2023

3.1 Data Collection

3.1.1 Desk review

Conduct a comprehensive review of relevant documents, and scholarly articles to establish a solid understanding of farmers markets in Nepal. This also includes studying the Mandi system (APMC) structure in India. All the secondary data will be collected from various reliable sources such as government reports, academic publications, statistical databases, and relevant literature.

3.1.2 Key Informant Interviews

The aim is to gather firsthand insights into agriculture market trend, issues and problem in one of the biggest agriculture wholesale markets in Nepal i.e. (Kalimati Market). Kalimati Fruit and Vegetable Market Development Board, Market Management Committee, traders and farmers are identified for key informants interviewed. These interviews will be conducted using a semi-structured approach, allowing for flexibility and in-depth exploration. In these interviews, the interviewer can ask different types of questions, and they can talk to individuals or groups. It's a mix of controlled and open conversations.

3.2 Stakeholders

1. Farmers
2. Intermediaries
 - Vegetable and fruits vocational committee

- Auction yard (trader)
 - Wholesalers
 - Retailers
3. Kalimati Fruits and Vegetable Market Development Board (KFVMDB)

3.3 Observation

During the fieldwork conducted in July 2023 in the Kalimati vegetable market, a non-participant observation method was also employed to collect data. This approach involved observing and recording details about the price decision-making process, transportation of the vegetables, waste collection, stalls distribution. This method was applied to prevent intermediaries from causing disruptions and was implemented during the busiest hours.

3.4 Challenge

During the field visit to Kalimati market the traders initially hesitated to share information with the researcher. They were cautious due to numerous newspaper articles highlighting how middlemen were profiting at the expense of farmers. After assuring them that the information was solely for research purposes, they became willing to share their insights. It's worth noting that there had been recent protests by farmers, including the destruction of tomatoes¹⁰ as a form of protest, and there were ongoing farmer protests during the visit as well¹¹.

3.5 Limitation:

- Limited Generalization: While the study is valuable for future researchers and policymakers, it is important to recognize that its findings may not be broadly generalizable.
- Resource and Time Constraints: Conducting a comprehensive research study often demands substantial financial resources and time commitments. The study may not have had sufficient time and funds to explore all dimensions of the research topic comprehensively, which can limit the depth of the findings.

¹⁰ <https://english.onlinekhabar.com/tomatoes-destroyed-kathmandu.html>

¹¹ <https://thehimalayantimes.com/business/farmers-protest-demanding-fair-price-for-vegetables>

- Limited Scope: The research may not have covered all relevant aspects of the topic due to its focus on specific areas, potentially overlooking other important variables. However, it may open the door for future research opportunities, as there are likely many unexplored aspects of the topic that could be investigated in more detail. Future research could provide a more comprehensive understanding of the subject matter.

4. Findings and Discussion

4.1 Current farmer's market system in Nepal: A Kalimati Market

In 1986, the Department of Food and Agriculture Marketing Services, a part of the Ministry of Agriculture, established the Kalimati Fruits and Vegetables Wholesale Market. This move was aimed at bringing structure to the marketing of agricultural products, with a specific focus on vegetables and fruits in the Kathmandu valley. It stands as Nepal's pioneering organized terminal wholesale market, remarkably, fulfilling a substantial portion of the demand within the Kathmandu valley, covering around 60 to 70 percent ¹² of the region's requirements. It is spread over 45 *ropani* (246,420 sq ft) area serving as a sourcing hub for retailers, institutional consumers, and other bulk buyers. According to the annual report for the year 2079 B.S., the Kalimati market handled a diverse array of 94 different agro products including fishes, weighing a total of 276,931.608 metric tonnes¹³ in a year. The majority of the vegetables arrive from Chitwan, Dhading, Kavre, Makwanpur, Sarlahi and India. There were 450 wholesalers and 59 retailers registered in the Kalimati market in the same year.

With the aim of efficiently managing market operations and facilitating the organized development of agricultural marketing, a new organizational structure in 2002 known as the "Kalimati Fruits and Vegetable Market Development Board" was established. This board's primary objective is to improve the socio-economic conditions of fruit and vegetable-producing farmers. The core activities of this market entity include market operation and management, the development of marketing information systems, the enhancement of marketing linkages, coordination with various stakeholders, research and development initiatives, as well as the utilization and improvement of market facilities.

¹² Interview with Kalimati Fruits and Vegetable Market Development Board (KFVMDB), July 2023

¹³ <https://kalimatimarket.gov.np/notice/258>

The function roles and functions of Kalimati Market ¹⁴

- Manage market facilities and services with a commercial approach.
- Keep and maintain the market place clean and hygienic.
- Control adulteration and transaction of unhygienic products.
- Encourage packaging, grading and standardization of products.
- Resolve the problems and disputes in the course of market management and operation.
- Fix necessary service charges and realize the same for facilities made available.
- Establish agricultural marketing information systems.
- Encourage the auction system in transaction.
- Train staff, traders and farmers.
- Establish and operate market and marketing facilities in potential areas.
- Perform other activities necessary for the management of the market.

4.2 Marketing channel

Effective vegetable marketing starts at the farm level, where farmers plan their production to meet market demands. However, the journey from farm to consumer involves collection, transportation, storage, sorting, cleaning, processing, and packaging (I.M., 1997). In Nepal's traditional supply chain setup, intermediaries have played a significant role due to the challenges associated with transportation and accessibility faced by farmers. During the field study in Nepal, several market channels were observed in the vegetable supply chain. Fig. 1. These channels represent the pathways through which vegetables move from the farm to the consumer, and they often involve various intermediaries.

¹⁴ <https://kalimatimarket.gov.np/pages/duties-and-functions>

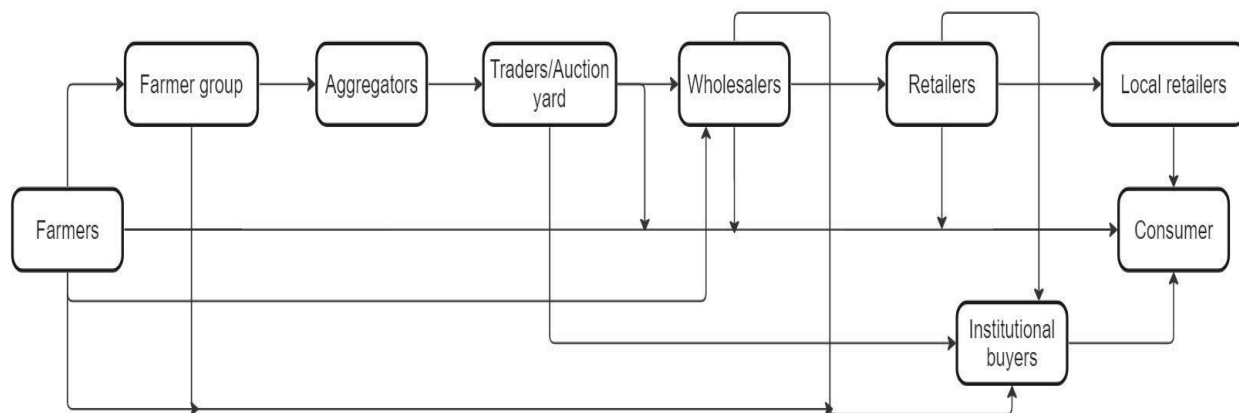


Figure 1 Market channel observed during field study, Kalimati Market

4.2.1 The shortest marketing channels

Farmers □ Consumers

4.2.2 The longest marketing channels

Farmers □ farmers' group □ aggregators □ traders at auction yard □ wholesalers □ retailers (local) □ institutional buyers □ consumers

- **Aggregators:** Some individuals, or organizations act as aggregators, collecting produce from multiple farmers and then supplying it to markets or buyers. Aggregators can provide economies of scale and better market access for small-scale farmers.
- **Wholesalers:** The Kalimati Market holds a pivotal role in facilitating wholesale trading. As per the established regulations, 9% of the space is designated for cooperative organizations, farmer groups, and related entities. The wholesale market categorizes its offerings based on produce, including potatoes, onions, fresh vegetables, fruits, flowers, and fish. The minimum transaction volume within this wholesale area is set at 5 kg. Notably, the primary customers at this wholesale venue include not only retailers but also institutional buyers and customers.
- **Retailers:** This setup caters to consumers who prefer to purchase in smaller quantities than those typically traded in wholesale.

- *Institutional Buyers:* Intermediaries also include institutional buyers such as schools, hotels, restaurants, and catering services. They often have specific requirements for volume and quality and may source directly from farmers or wholesalers.

In agricultural supply chains farmers often face challenges related to inadequate quantity, infrastructure, inefficient transportation, post-harvest losses, and limited access to markets. These factors can lead to high transaction costs, reducing the income that farmers ultimately receive for their produce. The presence of intermediaries, such as aggregators, traders, wholesalers, and retailers can add another layer of costs, which may or may not be compensated by the convenience and services they provide. On the other hand, margin distribution occurs at various stages downstream from the farm gate. The difference between the price paid by consumers and the price received by farmers is typically absorbed by these entities along the supply chain.



Figure 2 Vegetables in auction yard at 3:30 AM



Figure 3 Vegetables in auction yard at 2:00 PM



Figure 4 whole sale section, Kalimati Market



Figure 5 Retail section, Kalimati Market



Figure 6 Farmer market section, Kalimati Market

As seen in figure 6. There is a designated space farmers market section in Kalimati holding 12 stalls where local farmers can directly sell their freshly harvested vegetables and green leafy crops to the end consumers. This marketplace operates daily, starting from early morning until 10:00 AM and then again from 3:00 PM to evening. The market is divided into two shifts, ensuring a daily supply of fresh produce. However, discussions with the Kalimati Fruit and Vegetable Market Development Board (KFVMDB) and traders reveal that farmers often fail to fully occupy all 12 stalls for their vegetable sales. But on the other hand, during the telephonic interview, some farmers accused stall proprietors of subletting their stalls to other vendors. Despite reports in articles and news, there was a lack of effective inspection methods to prove or disprove the theory of third-party renting of stalls (Tuladhar, 2017).

Also during the interview with traders in Kalimati market, a specific practice was seen where traders (*thekedaar*) were providing seeds and other inputs to the farmers in exchange for an informal (verbal) agreement where the farmer committed to selling the eventual produce back to the same trader. Upon closer examination, it became evident that such practices constrained the bargaining power of farmers. While this arrangement did offer financial security to the farmers, it was noted that in the event of a crop failure, the farmers would still be responsible for covering the cost of seeds. Although instances of such losses were infrequent, this arrangement ultimately placed the burden of risk on the farmers.

4.3 Post-harvest loss and Waste Management in Kalimati Market:

During the interview, a wholesaler mentioned that in the past, agricultural products were typically packed in Doko (conical bamboo baskets) with or without cushioning. Some traders also used newspaper, cloth, dried grasses/straws, and polythene sheets for wrapping fruits and vegetables before packing, also reported by JICA, 2001. However, nowadays, some traders have shifted to using plastic crates to minimize losses. Nevertheless, during the visit to Kalimati Market, labor workers were seen using doko while unloading vegetables to the stalls. The losses incurred are as follows: 10% at the farm gate, 2% at the collection point, 5% at the wholesale market, and finally, 18% at the retail market. (Bhattarai et al., 2017). Due to highly perishable nature of vegetables, there is always a big challenge to have a good quality at marketing time. However, the losses can be minimized by proper handling, proper storage and transportation.

The Kalimati Vegetable Wholesale Market also struggles with a significant waste management problem as traders, wholesalers, retailers, bicycle vendors, and consumers dispose of damaged and unused vegetables within the market. This discarded produce contributes significantly to the overall waste generated in the market. Although this waste represents a substantial source of organic material, there is significant potential for its recycling into valuable commodities like compost. On an average day, the Kalimati Vegetable Market produces approximately 10 metric tons of waste, negatively impacting its cleanliness and hygiene (Awasthi, 2007). This issue is not unique to Kalimati but is widespread in other vegetable markets throughout the Kathmandu Valley. The primary reason behind this challenge is that farmers bring their vegetables to the market along with unnecessary parts and packaging materials, leading to increased waste within the market.



Figure 7 Vegetable waste seen during wholesale stall

4.4 Transport of vegetables:

Transporting goods from the collection centers or farmers field to the capital market has emerged as a noteworthy concern for traders and farmers. Because there are no clear rules for how to transport things, traders have to use regular vehicles instead of special cold stored ones for carrying farm products. This causes the products to lose weight because of the bad temperature inside the vehicles. Another problem with how things are currently transported is that there isn't much responsibility, so products damaged during the trip affects the farmers largely. Furthermore, the lack of a cold storage house in Kalimati market makes matters worse when the vegetables cannot fetch the desired price and it is destroyed¹⁵

¹⁵ Over 30 tonnes of tomatoes destroyed in Kathmandu <https://english.onlinekhabar.com/tomatoes-destroyed-kathmandu.html>

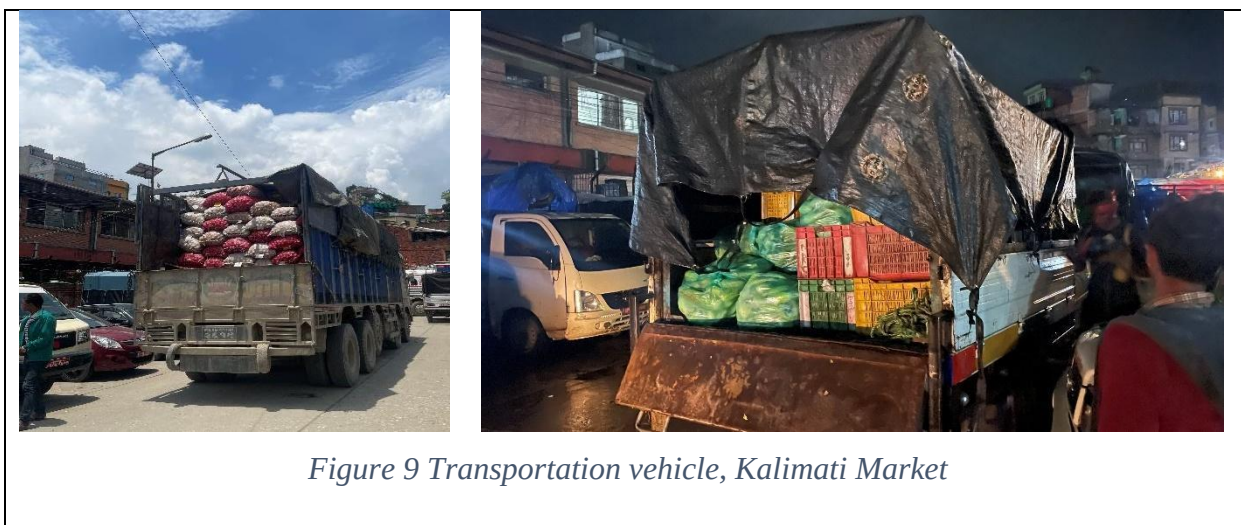


Figure 9 Transportation vehicle, Kalimati Market

4.5 Market Pricing Information system:

The development of a marketing information system in Nepal started modestly in the 1960s with the collection of retail prices. However, then information dissemination was limited to policy makers and planners (Awasthi, 2007) . Currently in Kallimati market, the Kalimati Fruit and Vegetable Market Development Board (KFVMDB) takes the lead in collecting and publishing the prices of vegetables traded in the Kalimati Fruit and Vegetable Market regularly. These prices are collected by taking price samples from five stalls randomly in morning and then updated daily, aligning with the supply-demand dynamics crafted in consultation with market wholesalers¹⁶. The collected price data is then disseminated through various channels, including notice boards, gorkhapatra newspaper, facebook page¹⁷ and their website¹⁸. The price information can also be accessed via toll free number¹⁹ by the farmers. This information primarily targeted wholesale traders, collectors and farmers. However, there is limited information provided as it only includes the minimum, maximum and average prices of commodities irrespective of their quality grades and time of the day. Even though the agricultural market information system in Nepal is not as well-developed or client-oriented compared to other Asian countries (Awasthi, 2007). We can say the current pricing information practice aids in monitoring price fluctuations, promoting

¹⁶ Interview with Kalimati Fruits and Vegetable Market Development Board (KFVMDB), July 2023

¹⁷ <https://www.facebook.com/kalimativegetablesmarket/>

¹⁸ <https://kalimatimarket.gov.np/>

¹⁹ Toll free number for whole sale rate 1618070766666

transparency, and preventing unjust pricing practices that could adversely affect farmers as well as consumers. However, farmers must be able to seek out and compare the information available for different outlets if they are to sell to their best advantage. Where there is a very wide gap between the farm gate price and the price paid in wholesale markets and by consumers, marketing information can help narrow the gap provided an efficient marketing system is in place. (Awasthi, 2007). So, farmers' limited access to market access, information and resources hinders the adoption of improved technologies and practices (Kumar et al., 2020). Consequently, this limitation may hinder their capacity to produce vegetables in sufficient quantities and of the desired quality.

The market information provided in Kalimati market website

- Daily price (Minimum/maximum/average)
- Daily Arrival
- Periodic Price
- Periodic Arrival
- Comparative Price
- Comparative arrival

Figure 8 Physical Pricing board in wholesale section



4.6 A case of exploitation of farmer

During the field visit, a notable observation was the absence of formal, written contracts between the farmers and the intermediaries involved in the agricultural supply chain. Despite this absence of legal documentation, it was apparent that farmers were still receiving essential support from these intermediaries, including the provision of seeds, agricultural inputs, and valuable agricultural knowledge. Verbal agreements were established between farmers and traders, wherein the traders pledged to purchase all the vegetables in exchange for providing various inputs to the farmers. This arrangement provided a sense of security for farmers, as they could rely on the guaranteed sale of their produce without concerns about finding buyers. However, it's worth noting that this arrangement also had its downsides, as it made farmers susceptible to potential exploitation or unfavorable terms in the absence of formal, written agreements.

During the field visit, a disturbing incident came to attention. It was revealed that a case had been filed to the KFVMDDB, where a farmer stated that they had not received payment from the traders for an extended period of two years, beginning in the year 2078 BS.

This particular episode sheds light on the vulnerability of certain farmers to potential financial disputes that can arise within the market. It underscores the importance of effective mechanisms for dispute resolution and the need to ensure fair and transparent transactions to safeguard the interests of all parties involved in the agricultural supply chain.

However, it is essential to recognize the limitations of the KFVMDDB's role in such matters. While the KFVMDDB does not possess the authority to enforce penal actions against traders, it does have the capacity to issue warnings or, in more severe cases, revoke the traders' licenses. This serves as a form of alternative for resolving disputes and maintaining fair practices within the market, even though it may not encompass the full spectrum of legal remedies.

4.7 Access of farmers to Market or farmers products to Market?

“Nepal’s vegetable prices are largely determined by the middlemen traders rather than by the logic of actual supply and demand- Record Nepal ²⁰”

“Middlemen take home a hefty sum of money, in some cases more than the farmers’ earnings, traders say- The Kathmandu Post²¹”

While it's true that middlemen often take a significant portion of the profit and may pay farmers less, or sometimes even worse not pay the farmers, it's essential to acknowledge that various actors in the supply chain provide valuable services. These services often include transportation, storage, quality control, and market access, all of which contribute to the convenience and efficiency of the system.

“I prefer selling my products through traders in the market rather than dealing with the hassles of personal sales. transport, stall management, and limited production capacity make this the most practical choice, allowing me to focus on production only in my own convenience” – farmer in phone interview²²

It should be noted that these services come at a cost, and the challenge lies in ensuring that the fees charged for these services are fair and do not disproportionately burden the farmers. Striking the right balance between compensating intermediaries for their services and ensuring that farmers receive equitable compensation for their hard work is a critical consideration in creating a more equitable agricultural supply chain.

Pokhrel and Thapa, 2007 in their paper “*Are marketing intermediaries exploiting mountain farmers in Nepal? A study based on market price, marketing margin and income distribution analyses?*” challenged the notion of marketing intermediaries in developing countries being viewed as parasites. The findings revealed that farmers in the area do receive a fair share of the benefits derived from mandarin marketing. However, the study also highlighted the exploitation of farmers by unscrupulous intermediaries, taking advantage of their limited bargaining power and economic vulnerability.

²⁰ <https://www.recordnepal.com/how-the-countrys-vegetable-cartels-continue-to-rip-off-both-farmers-and-consumers>

²¹ <https://kathmandupost.com/money/2022/04/08/middlemen-rake-it-in-while-farmers-and-consumers-suffer>

²² Information shared during the telephonic conversation

4.8 Mandi system in India

Mandis are traditional agricultural markets found throughout India that connect rural and urban areas, linking local agricultural markets to larger trade networks.

Mandis plays a vital role in regulating the initial transactions between farmers and buyers, making them crucial in complex markets for various agricultural goods. In India, there are a total of 2,477 primary regulated markets known as APMCs (Agricultural Produce Market Committees) and an additional 4,843 sub-market yards overseen by their respective APMCs, all categorized by their geographical locations²³. Agricultural marketing is under the view of individual states in India, and each state has separate laws under the (Agricultural Produce Market Committee) APMC act for regulated market yards or mandis. These markets are managed by Mandi committees and governed by the APMC Act. Participation in the trading process is restricted to licensed traders and commission agents. The APMC Act mandates that certain agricultural goods, including cereals, fruits, vegetables, and even non-vegetarian products, must be sold exclusively within the APMC framework, managed by commission agents licensed by APMCs. APMR Act (Agricultural Produce Market Regulation Act). It's crucial to note that every trade follows the mandi framework, adhering to specific rules. The establishment of APMCs, which formulate these trade regulations in mandis, falls under the responsibility of individual states. A major agricultural marketing legislation in India, has been revised to include provisions that promote contract farming, direct marketing, and the establishment of private markets. These changes aim to create direct connections between farmers, processors, exporters, and retailers, enabling small-scale farmers to benefit from economies of scale (I C et al., 2014).

Farmers: These individuals form the backbone of the agricultural marketing chain. While they have the freedom to sell their produce to anyone, their primary objective is to secure equitable

²³ <https://www.indiabudget.gov.in/budget2015-2016/es2014-15/echapvol1-08.pdf>

prices, which often leads them to choose mandis as their preferred selling platform. They bring their produce to the market, and sales are conducted via an auction process

Commission Agents: These intermediaries play a vital role in bridging the gap between farmers and traders. They assist farmers in obtaining favorable deals, charging a percentage for their services.

4.9 Role of Commission Agents (Arhtias) in Agricultural Sales:

In some states of India commission agents, also known as arhtias, facilitate agricultural sales sometimes even to the government agencies like the Food Corporation of India (FCI). They often provide advances to farmers even before payments from government procurement agencies are received, ensuring that farmers have necessary funds for the next cropping season and other needs. In some cases, these agents often deduct around 2 percent of the sale amount as a fee from the farmers. This fee covers various services provided by commission agents to the farmers such as offering agricultural credit during the cultivation season, which is usually lent out with an interest. Additionally, commission agents give price advice to farmers, since they benefit from higher prices through a share of the final price paid by both buyers and sellers. They also offer storage facilities if farmers want to wait for better prices, encourage potential buyers to bid on the produce, and sometimes buy from farmers directly when suitable buyers are not available. (Kapur and Krishnamurthy, 2014).

Traders: Registered participants within the mandi, traders are buyers who engage in auctions to purchase the agricultural produce brought in by farmers. They encompass a range of roles, including wholesalers, retailers, and exporters. Furthermore, auction facilities within mandis guarantee that farmers receive a just price for their agricultural produce. In plain terms, a mandi serves as a platform for agricultural trading activities.

APMC Staff: The staff associated with Agricultural Produce Market Committees (APMCs) oversee the trading process and strive to ensure a fair and transparent auctioning system. Their ultimate goal is to facilitate smooth transactions and promote equitable buying and selling of agricultural commodities.

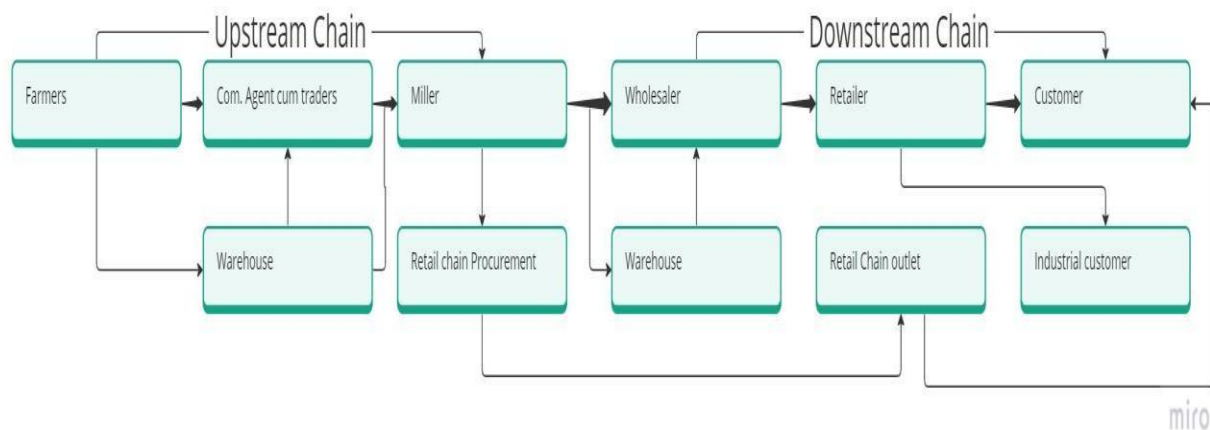


Figure 10 The Red Gram Supply Chain in Karnataka (Kapur and Krishnamurthy, 2014)

However, the argument is made by various scholars that large farmers tend to benefit more from the mandi system compared to smaller farmers due to the larger volumes of crops they bring to the market. Though, smaller farmers also find security in the Minimum Support Price (MSP) as it provides them with a predictable income estimate, aiding in managing household expenses and debt repayment ²⁴

Bihar, as a state of India repealed the APMC (Agricultural Produce Market Committee) act with the aim of attracting investment in agricultural marketing infrastructure and the food processing sector. The government has also implemented several other reform measures to boost investment in this sector. However, it's evident that the removal of APMCs has created a void in terms of effectively administering markets and maintaining existing APMC infrastructure (Intodia, 2011).

4.10 Insufficiency of Mandi system:

While the APMC Act was initially intended to safeguard farmers' interests, it inadvertently made farmers reliant on middlemen who played multiple roles as financiers, information sources, and traders. These middlemen fulfilled a vital function those formal institutions struggled to replace or

²⁴ <https://www.theindiaforum.in/article/agrarian-crisis-punjab-and-making-anti-farm-law-protests>

remove. It's important to note that not all agents and traders act solely for profit; in APMC markets, trade often occurs through auctions or closed bids to the highest bidder. However, the close connection between traders and commission agents tends to stifle competition, leaving farmers with limited bargaining power²⁵. As a result, farmers often receive only a small portion of the price paid by the ultimate consumer, while middlemen capture a significant share of the remaining amount (Mitra et al., 2018). Several research on agricultural markets in India has consistently found them to be inefficient (World Bank, 2005).

Data from nationally representative sources on agricultural households indicates that in 2012-13, only 25% of all transactions in India occurred through mandis, while 55.9% were conducted with private traders. Even before the recent ordinances, several states had already reformed their APMC Acts, enabling private players to establish market yards, engage in contract farming, and directly purchase produce from farmers, among other changes (Purohit, 2016).

4.11 Reform bills

In September 2020, the Indian Parliament passed three controversial agriculture reform bills²⁶. These laws aimed to deregulate and privatize India's agrarian economy, allowing private corporations to buy crops at market prices tax-free and stockpile essential goods without limits. This bill may be the path for end of mandi system where all the small-scale farmers will be holding their business; hence the government should take measures for the upliftment of the mandi system.(Shaikh and Wagh, 2021)

²⁵ <https://www.theindiaforum.in/article/three-farm-bills>

²⁶ <https://www.theindiaforum.in/article/three-farm-bills>

5. Recommendations to Improve Farmers' Access to Markets in Nepal

1. Strengthen the Market infrastructure

- Dedicate resources to the enhancement of critical infrastructure elements, including modern storage facilities and upgraded transportation options. These investments will not only minimize post-harvest losses but also uphold product quality throughout the supply chain. Mandi systems often provide storage facilities, allowing farmers to wait for better prices before selling their produce. Nepal should invest in modern storage infrastructure and promote the establishment of community-based storage facilities in rural areas and also in the wholesale market. This will help reduce post-harvest losses and enable farmers to benefit from favorable market conditions.
- Enhance hygiene and waste management within the market to ensure cleanliness and reduce waste.

2. Improve Transportation facilities

- Develop clear transportation guidelines and infrastructure for moving agricultural produce. This should include the incorporation of refrigerated vehicles for the preservation of product quality. By doing so, the damage sustained by vegetables during their journey along the rugged roads of Nepal can be reduced significantly.

3. Facilitating Advances to Farmers

- Commission agents in India play a pivotal role in providing advances to farmers before they receive payments from government procurement agencies. This practice ensures that farmers have access to the necessary funds for their immediate needs and the upcoming cropping season. The Nepalese government should consider establishing a similar mechanism, possibly in collaboration with financial institutions, to provide timely financial support to farmers.

4. Promote Fair Trade Practices:

- Encourage the adoption of formal, documented contracts between farmers and intermediaries. These contracts serve to safeguard farmers' interests and mitigate potential disputes. By promoting transparency and commitment, formal contracts provide a clear framework for transactions.
- Establish a robust regulatory framework to oversee the activities of traders, ensuring fairness and transparency in their operations. This oversight will help prevent unfair practices and safeguard

the rights of farmers. The government should be prepared to intervene when necessary to counteract market manipulation and protect farmers from exploitation.

- Create effective mechanisms for resolving disputes within the market. These mechanisms should prioritize fairness and equity, allowing farmers to address grievances promptly. By offering a structured platform for conflict resolution, the agricultural sector can function with greater integrity and reliability.

5. Facilitate Aggregator Models and Address the Role of traders:

- Encourage the establishment of farmer groups and traders that can efficiently gather produce from numerous small-scale farmers. This approach enables economies of scale and provides improved market access for farmers. By uniting their resources and collective bargaining power, these entities can strengthen the position of small-scale farmers in the market.

6. Support Private and Social Enterprises:

- Provide financial incentives and tax incentives to both private and social enterprises that choose to invest in crucial agricultural market infrastructure and services. These investments should encompass essential elements such as cold storage facilities, transportation networks, and market information systems. By offering incentives, the government can encourage increased participation and contributions from these sectors.
- Develop regulatory frameworks that foster a favorable environment for private sector involvement while upholding principles of fair competition and consumer protection. These regulations should strike a balance between encouraging entrepreneurship and ensuring that consumers are safeguarded against unfair practices.

7. Invest in Farmer Education and Training:

- Allocate resources to provide comprehensive training and support programs for farmers, focusing on improving their production techniques and post-harvest handling practices. Equipping farmers with updated knowledge will enhance the quality and quantity of their agricultural output. Additionally, include education on critical aspects such as cost of production, cost-benefit analysis, and the development of effective business plans to empower farmers with a holistic understanding of their agricultural enterprises.
- Educate farmers about their rights in the marketplace, emphasizing the significance of fair pricing, and the value of formal agreements. By ensuring that farmers are well-informed, we enable them to make informed decisions and advocate for their interests effectively.

- Guarantee that farmers have the freedom to choose between selling their produce independently or through intermediaries, without any coercion. The emphasis should be on providing farmers with choices rather than imposing a specific approach under the guise of promoting market access for farmers.

6. Facilitate Stakeholder Engagement and Sustained Oversight:

- Encourage active participation from a diverse group of stakeholders, including farmers, traders, market administrators, and government authorities, in ongoing discussions and consultations. This collaborative approach aims to identify challenges and jointly develop effective solutions.
- Establish a robust monitoring mechanism to track the implementation of these recommendations. Continuously assess the impact of policies and adapt them as necessary to address the evolving dynamics of the market.

7. Enhance Market Information Systems:

- Commission agents in India offer valuable price advice to farmers, leveraging their market knowledge to help farmers obtain better prices for their produce. The Nepalese government should also encourage the establishment of advisory services or agricultural extension programs to provide price-related guidance to farmers. This will empower them to make informed decisions and negotiate effectively with buyers.
- Foster greater transparency in pricing and transactions to shield farmers from exploitation. Implement measures such as real-time price information dissemination, digital platforms, and fair pricing standards. This empowers farmers with the knowledge they need to negotiate better terms and ensures that they receive fair compensation for their produce.
- Also ensure that farmers have easy access to and can utilize this information to make informed decisions and MIS is not Kalimati Market centric only.

By implementing these recommendations, Nepal can work towards improving farmers' access to markets, reducing post-harvest losses, ensuring fair pricing, and creating a more efficient and equitable agricultural supply chain. This will not only benefit farmers but also contribute to the overall development of the agricultural sector in Nepal.

6. Conclusion

The agricultural sector in Nepal plays a pivotal role in the nation's economy, providing livelihoods for a significant portion of the population. However, the sector faces numerous challenges, including post-harvest losses, limited market access, and the influence of intermediaries in the supply chain. Through a comprehensive analysis of the current agricultural market system, with a particular focus on the Kalimati Market, and drawing insights from the Indian mandi system, this study offers a set of recommendations to policymakers aimed at fostering fair play and efficiency within Nepal's agricultural markets.

One of the key takeaways from this analysis is the need to strike a balance between increasing farmers' access to markets and ensuring that markets operate fairly. While enhancing market access is crucial, it should not come at the cost of farmers' exploitation by intermediaries or undervaluing the work done by intermediaries. Therefore, the emphasis should shift towards creating market environments where stakeholders, including farmers, traders, and consumers, can engage in fair and transparent transactions.

Key recommendations include strengthening market regulation and oversight, promoting competition, and implementing fair pricing mechanisms. Transparent farming agreements and accessible conflict resolution mechanisms are essential for ensuring that farmers' interests are protected in market transactions.

In conclusion, the transformation of Nepal's agricultural markets into equitable and efficient systems requires a multifaceted approach. It necessitates the collaboration of all stakeholders, including government agencies, market management boards, farmers, and traders. It also requires continuous monitoring and evaluation to ensure that policies and interventions are effective in achieving their intended goals.

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