International Journal Of Accounting & Finance in Asia Pasific IJAFAP

Viability of Commodity Exchange in Bhutan: Assessing Challenges and Benefits

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ABSTRACT

This paper investigates the viability of commodity exchange in Bhutan and identifies its essential pre-conditions. Challenges and benefits are enumerated using exploratory and qualitative research with open-ended and semi-structured interviews. Bhutan represents an emerging South-Central Asian country successful emergence of which into the global arena in the last fifty years could serve as an example for other small and developing markets. The results of this study put challenges for farmers in two categories, before and after harvest. All post-harvest challenges can be addressed through an established commodity exchange and its three pre-conditions are essential to the development of commodity exchange in Bhutan.

Keywords: Bhutan, Commodity Exchange, Emerging Markets, Financial Development

INTRODUCTION

A commodity exchange is a place where the buyers and sellers of commodities come to carry out their transactions (Rashid, 2015). It is a market where multiple buyers and sellers trade in commodity-linked contracts based on rules and procedures set by the respective exchanges (UNCTAD, 2009). The transactions can happen with or without the exchange of physical commodities (Rashid, 2015). This means that the commodity exchange can be both a physical and a non-physical marketplace. Typically, it is a platform for trade-in futures contracts or standardized contracts for future delivery. However, in dozens of countries, commodity exchanges work in a broader range to stimulate trade. Other than the use of futures, instruments such as spot trades for immediate delivery and forward contracts in the form of warehouse receipts and repurchase agreements (repos) are also used in the commodity exchanges (UNCTAD, 2009).

The commodities most suitable for trading in the exchanges are those that go through high price fluctuations over a relatively short period. Agricultural commodities such as wheat and cotton (Hilferding, 1981) usually fulfill this condition. Commodity exchanges can boost market efficiency by helping to match the demand and supply of the commodities, over time and geographical distances, as they unite the buyers and sellers

of physical commodities (Belozertsev, Rutten, & Hollinger, 2011). In theory, it is believed that commodity exchange can be a key contributor to market development as it reduces transaction costs, helps buyers and sellers discover appropriate prices for the commodities, and also reduces the risks due to price fluctuations (Rashid, 2015). Market transparency is enhanced by providing precise information on the exact type of demand through grading and quality certification (Belozertsev et al., 2011).

The commodity exchange consists of both spots and futures contracts which help reduce price fluctuations by providing insurance against seasonal production, weather, and other types of stocks. For emerging markets, decreased price fluctuations are a pivotal aspect of stability in a growing trade. In the ever-increasing global environment of trade and finance, understanding emerging markets, their mechanisms for operation and growth, their current stage of development, and their impact on trade, give us a framework for greater inclusion and expansion for import and export markets.

Since the very early modern era, Bhutan had been carrying out regular trade with India in the south and Tibet in the north (Sarkar & Ray, 2006). Bhutan played a significant role in maintaining long-distance networks for the movement of tea, spices, wool, musk, and other goods. Ponies, rock salt, blankets, bee-wax, spices, and gold were some of the main commodities traded, and the Bhutanese purchased mainly paddy, rice, silk cloth, and various types of cotton cloths from its neighbors (Sarkar & Ray, 2006).

Currently in Bhutan, the exchange and marketing of agricultural commodities are primarily carried out through auction yards located in various places in Bhutan. This service is facilitated by the Food Corporation of Bhutan Limited (FCBL). To facilitate exchanges in higher volumes, they also provide credit facilities to Indian buyers (Department of Agricultural Marketing & Cooperatives (Department of Agricultural Marketing & Cooperatives (DAMC), 2016). The most important player in the Bhutanese commodity market is the Department of Agricultural and Marketing Cooperatives (DAMC) which commenced its operation in March 2010. The main objective of the department is to aid the Ministry of Agriculture and Forest in their aim of making the Agriculture sector a key player in the development of the market economy. DACM's vision is to be "a vibrant and responsive marketing and cooperative institution, supporting profitable and people-centered marketing of RNR (Renewable Natural Resources) products, for both domestic and international markets contributing to sustainable socio-economic development" (Department of Agricultural Marketing & Cooperatives (DAMC), n.d.).

Exports and import trades are also central to the Bhutanese commodity market. It has direct trade with many countries such as India, Japan, Singapore, China, Germany, and many more. The trade statistics of 2007 showed that there was a huge surge in Bhutan's exports and imports when contrasted with those of 2006. Bhutan's exports to India grew by 16.13% whereas imports grew by 33.49%. The imports from countries other than India also showed a significant increase. It increased by 11.55% while exports grew by 19.9%. By 2008, Bhutan's exports came to about $513 million whereas the imports stood at $533 million (Economy Watch, 2010).

Bhutan's key trade partner has always been India. Considered one of the largest emerging markets, India has had a large influence on Bhutanese trade. Bhutan and India have an open trade agreement and there are minimal trade barriers between the two countries. In the Agreement on Trade, Commerce and Transit between India and Bhutan,

Article I, it has been specified that “There shall, as heretofore, be free trade and commerce between the territories of the Royal Government of Bhutan and the Government of the Republic of India”. It was also specified that though there will be free trade and commerce between the two countries, Bhutan may impose restrictions on some goods to protect the industries of Bhutan (Indian Trade Portal, 2014). India remains the top trading partner of Bhutan exports and imports. In the trade statistics of 2014, the value of imports from India stood at around 47 billion Ngultrum (1 Ngultrum= 1 Rupee) and the exports stood at around 21 billion. The highest traded commodity with India is electricity and it generates the most returns (Ministry of Finance (MOF), 2014).

Though international trade does take place, Bhutan has been in a trade deficit for a long time. The 2014 trade statistics show that the overall trade deficit of Bhutan increased from Nu. 9.76 billion in 2009 to Nu. 21.30 billion in 2014. With India alone, Bhutan’s trade deficit stood at Nu. 16.05 billion (MOF, 2014). Bhutan is not able to produce enough to sustain its own needs. This is mainly because of Bhutan’s traditional practices.

The majority of Bhutanese farmers are small and marginal. The agricultural land is characterized by small plots of land, which is cultivated mostly by family labor because of which large-scale production is restricted (Tobgay, 2005). The introduction of capitalistic farming was attempted during the reign of their first hereditary King, Ugyen Wangchuck. However, it was not successful due to insufficient required capital and strong adherence to traditional agricultural practices (Basu, 1998). This is where we can see how cultural practices can impact large-scale production which may hamper Bhutan’s role in international trade.

Trading in commodities is not a new concept in Bhutan. Commodity trading has been taking place from early ancient times with Tibet and border towns of India such as Assam and North Bengal. Bhutan has modern trade relationships with countries such as India, Bangladesh, Nepal, and Thailand, and trading takes place in huge volumes (Hassan, 2000). The Bhutan Trade Statistics of 2014 shows that Bhutan’s imports stood at about Nu. 56 billion, whereas exports stood at about Nu. 24 billion.

Commodity exchange itself is a new idea in Bhutan. While Bhutan’s neighbors such as India and Bangladesh have well-established commodity exchanges, Bhutan still does not have a fully-fledged commodity exchange. To compete in a globalized environment, Bhutan needs to have a strong commodity exchange. Commodity exchange would be the next step in the evolution of Bhutan’s commodity trading practices and could serve as a role model for emerging South Central markets. Additionally, as an agrarian-based economy, a study was needed for the challenges farmers face in growing and expanding their business base as the viability of commodity exchange and identification of the challenges have not been studied. The main motivation behind this research is to provide a background on whether commodity exchange would be viable for Bhutan and to discern if findings could be applicable for other emerging markets. The conditions for the development of commodity exchange and the challenges that Bhutanese farmers are facing in commodity trade was also examined.

Commodity exchanges are predominant in both developed and developing countries and it has brought tremendous change to how commodities are traded. In developed countries, commodity exchanges usually act as a platform for futures contracts or standardized contracts for future delivery whereas in developing countries they help stimulate trade in the commodity sector (UNCTAD, 2009). Commodity exchanges are

also flourishing in emerging economies of China, India, Brazil, Malaysia, and South Africa. However, in developing countries, the establishment of agricultural commodity exchanges remains a challenge though government-led and donor-funded initiatives have been taken (Rashid, 2015).

In many African nations, commodity exchanges have been lack of success due to conditions such as small market size, weak infrastructure, lack of legal support, an underdeveloped financial sector and regulatory framework, and unpredictable government market interventions. Many countries have also faced similar problems especially due to the size and structure of the spot market, which is essential for the proper functioning of commodity exchange (Worku, 2016).

The commodity exchange success also depends on the volume of participants and their level of education and knowledge about the exchange. For instance, in Africa, after the launch of Ethiopia Commodity Exchange (ECX) in 2008, initially the number of coffee exports drastically fell from 133,998 to 47,629 tons. It was identified to be a lack of familiarity with the concept of commodity exchange and the benefits it provided (Worku, 2016). For example, futures contracts in commodity exchange can be very complicated and difficult for new traders to understand. In Russia, it was seen that the agricultural commodity traders and the local financial investors were the only main players in the commodity derivatives market as they were more active and flexible in their business strategy implementation. However, the agricultural producers were not highly active in the national derivatives market due to the lack of information on how to manage price risks by investing in agricultural commodity derivatives (Belozertsev et al., 2011). Another reason for the need for a high volume of trade is to remove the chances of 'rings' being formed or the market 'cornered' for the establishment of a monopoly which would eliminate price fluctuations and speculation (Hilferding, 1981).

Proper grading and sampling of the commodities is a key aspect of commodity exchanges. Improper grading and sampling can drastically impede the functioning of the exchange. A survey in Ethiopia showed that 64.8% of the respondents were unhappy with the grading system of ECX, apparently due to bias, lack of accurate measuring equipment, and lack of proper knowledge (Worku, 2016). Rashid, Nelson, & Garcia (2010), stated that even if the commodities are the same, their samples may differ in terms of moisture content, impurities, safety standards, and other features. Tradable commodities in the futures market must be subject to grades and standards of relevant attributes. Furthermore, exporters in Ethiopia faced problems regarding the quality and sampling representation of commodities especially when sesame seeds of different origins were mixed, because of which they faced difficulty in trading in a globalized environment (Worku, 2016).

Garcia, et al. (2010) also identified certain essential conditions for the development of commodity exchanges. They concluded that the nature of the commodities was important since some of the commodities have storable capacity while others do not. Storage is important to ensure a continuous supply. As "A contract can only be traded on a commodity exchange if both buyers and sellers are reasonably certain about the availability of special commodity at a particular date and location" (Kiriga, Njenga, Laibuni, Ikiara, & Omiti, 2012), it is important to understand the nature of the commodity. Here the importance of the value chain also comes into question. Proper storage is one of the key components of the value chain. To enter into a global market and make the

best use of globalization, it is beneficial to recognize factors influencing the whole value chain (Kaplinsky & Morris, 2000).

The size and the level of activity in the spot market is another determining factor of a proper commodity exchange. The commodities listed in the exchanges are likely to be traded only if there is a large spot market, in terms of value and the number of market participants. A large volume of trade is needed to generate enough commissions to cover the costs of running the commodity exchange. The activity level of the spot market helps in providing information about various dealers and their inclinations to craft contracts and inform bids in the exchange (Garcia et al., 2010). If we look into the case of Kazakhstan, even in the most active exchanges like Kazakh International Commodity Exchange (KICE) and Eurasia Trading Systems (ETS), the trade volume was due to low activity in the spot market. This was one of the reasons for the slow growth of commodity exchanges in Kazakhstan (Belozertsev et al., 2011).

Physical infrastructure is another condition that determines the effectiveness of commodity exchange. Under a physical infrastructure comes the communication network particularly important for disseminating spot market information of product quality, quantity, and price to the traders. Emeni (2010) argued that the development of a commodity exchange is positively related to the availability of market information. Proper transportation and distribution system is also required to support the exchange so that the delivery location can be carefully specified in the contract. Good infrastructure such as roads can also support the exchange by linking various spot markets to one another. One of the main challenges the emerging markets face is the lack of physical infrastructure essential for smooth functioning commodity exchange (UNCTAD, 2009). As infrastructures play a vital role for any sectors, such as tourism (Dewi, Adhianata, & Suwignyo, 2018) and in the workforce (Dehoop, 2019), Garcia et al. (2010) highlighted that a lack of physical infrastructure was one of the key constraining factors in the development of commodity exchange in most African nations.

A proper regulatory framework is also needed in the commodity exchange in exchanges should institute robust and relevant procedures, rules, regulations, and guidelines to license and regulate the conduct of members, brokers, and traders who take disciplinary actions against parties failing to conform to the rules (Kiriga et al., 2012). In the African markets, the real challenge was enforcing a strong regulatory framework (Garcia et al., 2010).

Macroeconomic factors, the integral parts of international finance, could also determine the success of commodity exchanges. Between 2003 and 2008, as the world experienced the longest and broadest commodity boom after World War II, the prices of nominal energy and metal increased by 230% and the prices of fertilizers quadrupled. Thus, macroeconomic conditions were identified to be one of the factors that led to the increase in commodity prices. For example, low past investment in extractive commodities, weakened dollars, fiscal expansion, and loose monetary policies in many countries were some of the macroeconomic factors that led to the commodity boom (van der Mensbrugghe, Osorio-Rodar, Burns, & Baffes, 2009). For instance, the commodity exchanges in Kazakhstan, which began in the 1980s, faced critical macroeconomic and structural problems in the late 1990s and 2000s after which only 15 registered commodities survived (Belozertsev et al., 2011). Another instance is that of Zimbabwe, where due to hyperinflation caused by unsound monetary management, commodity exchange became unattainable (Garcia et al., 2010).

Constant interference by the government can also impede the functioning of commodity exchanges. Export bans and other interventions to reduce price fluctuations could also undermine the commodity exchanges, especially if these rules are randomly implemented or only for specific purposes. In Kazakhstan, a state-owned food corporation had a major influence on the domestic grain markets and thus giving a strong influence on the domestic grain prices (Belozertsev et al., 2011). In Russia, the intervention came in the form of strict commodity market regulation and a tax increase (Maximchook, 2013).

Small farmers face multiple strong challenges with the production and marketing of their produces. If the farmers lack proper storage facilities, they may incur heavy losses due to their harvest damage caused by pests and fungal infestations. Similarly, without proper road infrastructure, the farmers may not be able to transport or market their produce. In Nigeria, inadequate infrastructures such as access roads and lack of standard price measure for the commodities made huge financial and post-harvest losses (Nigerian Pilot, 2016). Small farmers may also lack market information therefore they may not be able to determine the price at which to sell, whom to sell, and at what time to sell. A report by UNCTAD (2009), a study group on emerging commodity exchanges, also identified some of the risks of production (uncertainty of output quantity and quality), price (price volatility creating return on investment and assets uncertainty), market (uncertainty about of produce purchaser), counterparty (uncertainty of other parties' contract terms fulfillment), credit (uncertainty of securing funds to cover working capital during the course of the season and investment for next year's crop), and institutions (uncertainty about changes to public regulation or government support).

Setting up a commodity exchange in a country could eliminate some of these problems faced by these small farmers. Seeger (2004) stated that commodity exchange benefits have helped developing economies transition their agricultural sector to higher levels of success. In India, the Multi Commodity Exchange of India Limited (MXC), aims at helping rural farmers market their produce (Team YS, 2011).

Price transparency and efficiency are enhanced within a commodity exchange due to the participation of a large number of buyers and sellers (Surana, 2015). Trading in terms of futures rather than spot transactions increases the likelihood of reaping returns. It also reduces intra-seasonal volatility (The Herald, 2012). Farmers can also enjoy indirect benefits as well as they do not have to trade in the exchange. If they are aware of the exchange prices, they are able to bargain better prices for their produce later on. Also, they can decide on which crops to sow and when to sell by identifying which crops are demanded at what time (Surana, 2015).

Along with transparency, farmers will be able to manage the risk associated with trading in agricultural commodities. Being the most volatile commodities in the exchanges, they are prone to price trajectory. By trading in futures, farmers can avoid serious losses whenever the prices fall (The Herald, 2012) as intra-seasonal volatility is one of the major risks that farmers face.

The availability of transaction rules ensures the integrity of member companies who are brokers in the exchange (The Herald, 2012). Also, by imposing proper framework and rules, the exchange can ensure the confidence of buyers and sellers to transact. Proper rules and procedures also protect the participants from dishonest practices by the

exchanges, counterparties, or intermediaries that they might interact with (UNCTAD, 2009).

Traders can likewise lessen the transaction costs by providing services at a lower cost than that which the participants would incur if they were trading outside the exchanges. Costs associated with finding a suitable buyer or seller, negotiating terms and conditions, securing finance, managing credit, cash and product transfers and settling disputes are some of the costs that commodity exchange reduces (UNCTAD, 2009). Additionally, the exchange would make available a dispute settlement system through arbitration which is a shorter route than the court system. Furthermore, the warehouse receipt system allows the farmers to deposit their produce in registered warehouses hereby reducing post-harvest losses and providing storage facilities (The Herald, 2012).

Finally, commodity exchanges can also become a hub for fairness and equity in trade. The regulatory framework of commodity exchanges should be formed in such a way that it does not allow their participants to be exploited by the people they have to deal with. For example, in the case of African farmers, due to fragmentation, the farmers were exploited by the intermediaries from private traders to public marketing boards. Since Africa's markets tend to be so disorganized, the intermediaries used it to their advantage. Some of these intermediaries were the only purchaser from the farmers, and because of this lack of competition, the farmers had no choice but to take whatever price was offered (Mukami, 2014).

RESEARCH METHOD

This research is exploratory in nature and follows a phenomenological research approach. Phenomenological research approach is mainly used in qualitative research in which researchers attempt to understand the experiences of people in particular circumstances (Lester, 1999). This approach aims to develop a complete and coherent description and understanding of human experience and experiential movement. This goal is achieved through specialized methods of participant selection, data collection, systematic data treatment and finally assembling of the interview components into the final report (Groenewald, 2004). A variety of methods are used in this research approach, including interviews, conversations, observations, focus meetings and analysis of personal texts (Lester, 1999). This research tries to identify the essential conditions for the development of commodity exchange in Bhutan, and identify the challenges Bhutanese farmers presently face in commodity trading. Therefore, the suggested research approach will help to better understand the current situation of people involved in commodity trading in Bhutan.

For this research, the data was collected through interviews with open-ended and semi-structured questions. Open-ended questions allow respondents varying answers thereby giving them the freedom to express their thoughts openly (Fox, 2009). The questions were in the form of semi-structured, open-ended interviews which consisted of telephone interviews and face-to-face interviews. The respondents were informed beforehand that their calls would be recorded for research purposes. The interviews were carried out in languages that respondents were most comfortable with, which were Dzongkha, Lhotshamkha (Nepali), and English. Convenience sampling was used.

RESULTS AND DISCUSSION

The challenges of the Bhutanese farmers in commodity trading in Bhutan can be put into two different categories. The first is the pre-harvest challenges, which include bad weather conditions, lack of labor force, small farm size, and damage to storage and marketing of commodities.

From the interviews with the farmers, farmer groups (FGs) and cooperatives (Co-ops), it was identified that lack of labor force and small farm size are major problems that farmers face. The majority of the farmers have difficulty producing in large volumes as they either lack a sufficient number of farmhands or the required farm size for large-scale production. Hiring people to work on their farms was one of the solutions they had adopted. However, the cost associated with hired labor was a problem. One of the farmers expressed his concern that there were not any profits left after selling their harvests since the majority of it went into paying the hired labor. Another solution was cultivating in leased land. However, this once again was hard for several farmers as larger land means they would require a larger workforce that the majority of them did not have.

This problem was also seen at the FGs and Co-ops level. Some of the FGs and Co-ops had difficulties with their production due to the small number of people in their group and the insufficient cultivatable land. From the interview with one of the groups, it was found that initially, the group had started off with about 20 members. However, later several members had left the group leaving behind only 7 members. For this reason, the group was not able to properly function. Similarly, another group was not able to function well as they lacked sufficient farmland. The group had tried hiring lands from the private farmers however they were unable to do that since the private lands were being used by the farmers themselves to grow their own crops. From the interviews, it was found that this problem was more common in the case of individual farmers than FGs and Co-ops and this was because the members in the groups work together and combined their lands into one unit. All in all, it was found that the farmers were highly interested to produce in larger volumes however they were unable to do so due to insufficient labor force and farm size.

Bad weather conditions were another major problem that impeded large-scale production for the farmers. Heavy rainfall, excessive heat, frost, and hailstones were some of the natural climatic forces that several farmers were fighting. Sudden changes in the temperature were seen as a major concern for the farmers. One of the farmers from Chukha Dzongkhag had lost all his potatoes due to extreme temperature changes. The farmer stated that it was very cold when it rained and extremely hot when it was sunny. However, this was not the case with the potato growers from other Dzongkhags (Judicial districts of Bhutan) such as Bumthang, Paro, and Mongar. They were able to grow potatoes in large volumes without difficulties with weather changes. It could be because Chukha's climate was not suitable to grow potatoes. Heavy rain or excessive heat, however, was the cause of crop destruction for other farmers from Dzongkhags such as Sarpang and Dagana. It was found that crops such as cardamom, rice, and other vegetables were prone to damage from excessive rainfall or heat.

Finally, the damage from wild animals such as wild boars, deers, monkeys, birds, rats, and mice was also seen as one of the limiting factors to the large-scale production of agriculture commodities. The potato growers in Bumthang, Paro, and Mongar stated that

the majority of their potatoes were destroyed by wild boar which was a very common animal in Bhutan. Similarly, birds, mice, and rats do major damage to grain crops such as paddies, wheat, and maize.

These claims are confirmed by Bhutan Agriculture statistics of 2015 published by MoAF (Ministry of Agriculture and Marketing Co-operatives). The statistical survey carried out on the farmers across Bhutan in 2015 showed that 53% of all farming households were affected by a labor shortage, 43% by wild animals, and 8% by natural climatic conditions. These findings show that farmers in Bhutan are indeed being affected by three pre-harvest challenges explained above.

One of the most common post-harvest challenges was the lack of proper storage for their harvests. Farmers usually store their harvests in homemade areas with no proper refrigeration. For this reason, the farmers are only able to store dry crops such as grains. Other vegetables with shorter storage capacity such as cabbages, onions, and beans have to be sold by the farmers as soon as they are harvested. Due to lack of proper storage, most perishable vegetable crops are not harvested until they are ready to be taken into markets. The problem with this method is that if the farmers leave the vegetable crops out in the open for too long, there is a greater risk of it being damaged by heavy rainfall, extreme cold, or wild animals. Even for the storage of grains such as rice, wheat, and maize which do not need refrigerated storage, the problem persists. Infestations by pests such as mice, rats, and other insects and fungal growth are a major issue amongst farmers.

Unlike the individual farmers, however, FGs and Co-ops have better storage facilities. Government-built storage for grains and cold storage for perishable vegetables are available. However, one of the groups indicated that the cold storage the government provided did not have high storage capacity and that they were not able to store the majority of their produce. This inadequate storage makes the farmers unable to sell their seasonal crops in different periods.

The lack of proper storage could also have a major implication for the smooth functioning of commodity exchange in Bhutan. A continuous supply of commodity exchanges allows for meeting the demand and supply requirements and is ensured if there are proper storage facilities. From the findings above we can see that farmers are having a hard time with the storage of seasonal crops, which means that these crops will not be traded on the commodity exchanges without proper storage and refrigeration facilities. A similar finding was made in Africa that many East African economies lacked the storage facilities which are essential for commodity exchanges. They argued that without proper storage for the commodities the contracts would not be traded as the exchange would not be able to ensure delivery of commodities at the locations and particular dates (Kiriga et al., 2012).

Another major difficulty for farmers is the marketing of their crops. The first difficulty in marketing is price discovery. Many times, the price discovery is through word of mouth of other market participants such as other farmers, vendors, or agents which may not be the most reliable source. DAMC is a major player in disseminating information on market prices of both local and imported crops. They do this from their online website and also through mobile-based interactive voice response service. However, when asked if they used the price information given by DAMC the majority said that they did not, and some of the farmers were unaware that such a thing existed. The farmers usually find out the

prevailing price of the crops from the local market and then determine prices for their crops which may not be the same as the one prevailing in the market and they incorporate the input cost in their prices. This creates inconsistency in the prices of the same crops from different farmers.

When asked if the farmers were satisfied with the prices they got for their crops, the majority of them indicated that they did not. For cardamom and oranges, the dealer and agents come to the farmers directly and then offer the farmers different prices. The farmers have to pick the best price and then decide whom to sell to. Since there are many sellers and buyers at the auction yards, the intensity of competition is extremely high. Commodity exchanges can play an important role in disseminating market information of agricultural commodities to the Bhutanese farmers so that there will be consistency in the prices of agricultural commodities (Sehgal, 2012).

The second challenge is price fluctuations. Price changes are especially common in agricultural commodities due to the high demand and supply variations. From the interviews, it was found that price changes occur three times a season for many of the vegetable crops. The first price change happens at the beginning of the season when the demand for newly harvested crops is high. The second price change occurs during mid-season when the supply in the market is very high. Finally, at the closing of the season the supplies decrease again and the prices go up. This is common for all local seasonal crops in Bhutan if the majority of the Bhutanese farmers had cold storages when they would be able to sell their crops even during the off seasons which could eliminate drastic price changes.

Finding buyers is another major challenge. Willingness to purchase and price are constant issues, especially when outside of major towns. For example, from an interview with one of the farmers who sold their vegetables at the Trashigang market, it was found that the farmers have to wait for days to finish selling their crops, and sometimes more than half of the vegetables spoiled. Similarly, the farmers in other Dzongkhags like Dagan, Mongar, and Tsirang are away from major markets. Thus, farmers usually prefer bringing their vegetables to the Thimphu market, which then pushes up supply in one area and decreases the price. One of the key benefits of having a commodity exchange is that it helps match the buyers and sellers. Findings of the research by Gabre-Madhin & Goggin (2005), on the introduction of commodity exchange in Ethiopia also identified that introducing an exchange would help facilitate contact between buyers and sellers.

Market accessibility and transportation cost was the most common problem for the majority of the Bhutanese farmers. Major landslides along different trade routes cause heavy damage. Since the vehicles used for transporting the commodities do not have refrigeration facilities, spoilage quickly occurs. Poor road infrastructure is prevalent throughout the country and animal transport is common, taking them anywhere from one hour to one day from the closest road. The cost was also associated with the transportation of commodities.

Warehouses are one of the key features of commodity exchanges. The warehouses are usually set up strategically throughout a trading area so that it has a maximum reach to all the major markets. Since Bhutanese farmers are having difficulty accessing the markets, a formalized commodity exchange through its warehouse capabilities could be able to help the farmers sell their harvests. For example in Ethiopia, ECX with the help

of its warehouses was able to connect different regions. In turn, this reduced transfer costs associated especially with coffee trade (Gabre-Madhin & Goggin, 2005).

To sum ap, Bhutanese farmers are exposed to many challenges that occur before and after the harvest of their crops. The first is the pre-harvest challenges, which usually affect productivity, are lack of labor force, small farm size, bad weather conditions, and damage to crops from wild animals. The second is the post-harvest challenges, which is mainly associated with marketing of the commodities, includes initial difficulties in storage, price discovery, price fluctuations, the difficulty of finding customers, and lack of market accessibility and high transportation costs. Though commodity exchange will not be able to help the farmers with the pre-harvest challenges, it will help the farmers tackle many of the post-harvest challenges.

CONCLUSIONS

Commodity exchange facilitates trade by matching buyers and sellers. They are platforms for trade in futures contracts or standardized contracts for future delivery and hedging. For this research, the main goal was to determine whether commodity exchange would be viable in Bhutan. Two objectives were created: to identify the conditions which are essential for the development of commodity exchange in Bhutan and to identify the challenges faced.

The findings of this research indicated that farmers in Bhutan are exposed to challenges like damage to crops from bad weather conditions, wild animals, lack of farmhands, and small farm size. Post-harvest challenges consist of proper storage, price fluctuation, difficulty to find buyers, lack of market accessibility, and the difficulty of getting price information. All of these post-harvest challenges can be addressed through an established commodity exchange programs and mechanisms. The three pre-conditions namely, the volume of production, infrastructure, and potential participants of the exchanges, are essential to the development of commodity exchange in Bhutan. The volume of production for commodities like paddies, potatoes, and maize is high that makes them perfect for the exchanges. There is a lack of cold storage for seasonal commodities like cabbages and chilies that makes it difficult to store these commodities hence not suitable for the exchanges. Trade routes are not as advantageous because they are prone to damage from natural causes like landslides and snow. Finally, the potential participants of commodity exchange (farmers, FGs and Co-ops, vendors, and agents) all had a positive response to the idea of commodity exchange and many of them showed interest in participating. By taking all of these factors into consideration, it was concluded that commodity exchange is viable in Bhutan and further research into the viability and financial impact is warranted.

Storage is essential for a commodity exchange to ensure a continuous supply of agricultural commodities. Since Bhutan lacks proper storage facilities at the farmer level, proper storage must be constructed. The commodity exchange will also have to ensure the functional warehouses are made available. Warehouses in strategic locations around major markets will help guarantee product quality and supply, which will in turn increase liquidity. Since a majority of the participants were farmers, they must be educated about how commodity exchange works. As the majority of the farmers did not understand English, the education about the exchange must happen in the language they are most comfortable in. Similarly, other traders of a commodity like agents and vendors should also be educated.

In addition, crops in Bhutan are damaged by natural calamities like weather conditions and wild animals which in turn constrict large production volume. A viable insurance mechanism should be investigated to encourage the ongoing pursuit of volume production and innovation in farming techniques. FGs and Coops could play an integral part in the commodity exchange. They bring together fragmented farmers to ensure large volume production and they aid marketing for the farmers. They could also participate as hedgers in the exchange. Therefore, encouraging more FGs and Coops to be initiated could help the exchange function more efficiently.

This research has far-reaching implications for the growth of Bhutan into international trade and as an example to many other agrarian-based South Central Asian countries. This study has inherent limitations based on the very limited budget available to conduct research. Self-funding is the primary source of most research attempts and advancement. Additionally, the populace is unfamiliar with the aspects of academic research, and its goals and aims. Acquiring access to respondents is frequently time-consuming and when successful, often met with suspicion and disinterest.

While it is recognized that this was an exploratory study into the viability of commodity exchange in Bhutan as a method for increased globalization and as a role model for other small Asian economies, the findings do support further research into and implementation of initial steps of formalized commodity exchange. The study needs to be expanded to finances sought to understand the conditions for successful implementation of commodity exchange in this and other emerging markets. It is hoped that this initial study will lend support and interest in ongoing research.

Acknowledgement
The authors would like to recognize and thank the Fulbright Scholar Program for its role in supporting scholarly exchange and work with the Kingdom of Bhutan.

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