North American Academic Research

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Research

Impact of China Pakistan Economic Corridor (CPEC) on Fruit Industry in Gilgit-Baltistan

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***Accepted** : 20 June 2019; **Online** : 26 June. 2019*
DOI : https://doi.org/10.5281/zenodo.3257756

Abstract : *Gilgit-Baltistan (GB) is consider one of important contributor of fruit production in Pakistan however, Production of fruit is low as compare to other parts of country due to different factor like, remoteness, Shortage infrastructure (road), lack of market and traditional practice's etc. Therefore, this study was aimed to develop linkages between CPEC and fruit industry of GB. The study was based on both primary and secondary data as well as quantitative and qualitative data. Primary data was collected from field through face to face interview using well-structured questionnaire and secondary data was collected from different sources i.e. books, articles and journals. Simple Random Sampling Technique was used to collect data from farmers and Shopkeepers and the Snowball sampling technique was used to collect data particularly from middlemen. The data was collected from three type of respondents i.e. farmers, shopkeepers and retailers. The data was collected through well-structured questionnaires including both quantitative and qualitative parts. Data was described with the help of graphs and tables. The data shows that there were strong linkages between CPEC and fruit (Dry and Fresh) industry of GB. The finding of this study revealed that hindrance that decline fruit production in like lack of transportation, low price, climate change, lack of market information, lack of government service, lack of cultivated land tradition method of production, pest and disease, lack of industries and lack of technical*

expertise. The opinion of respondents regarding does "CPEC will open new opportunities for local people to boost their fruit production and uplift their livelihoods" is very positive as 74% farmers, 85 % shopkeepers and 90% middlemen agreed with the statement. The research also revealed that 90% farmers, 80%, shopkeepers and 86% middlemen were in opinion that CPEC will improve communication and accessibility with other parts of the country while, 87% farmers, 85% shopkeepers and 90% middlemen agreed that it will reduced transportation cost. The study also finds that 75% farmers, 60% shopkeepers and 80% middlemen claimed that after implementation of this project agriculture and life standard of farmers will improve because it helps to improve our fruits production. Moreover, the data shows that average gross production of fresh fruit in Manipin was greater than gross production in Syedabad on the other side. One of the interesting finding of the study is that the Opinion on "Negative Implication of CPEC on GB" Environment i.e. 80% local farmers, 85% Shopkeepers and 90% middlemen claimed that CPEC will further lead climatic changes in GB, 73% farmers, 70% Shopkeepers and 80% middlemen agreed that CPEC will lead land degradation. 75% farmers, 80% Shopkeepers and 50% claimed that after implementation of CPEC local fruit industry will not able compete Chinese exports.

Keywords : *China Pakistan Economic Corridor, Fruit Industry, Traditional Practices.*

Introduction

Geographically, Pakistan located between 24°-37°N latitude and 61°-75°E longitude, with arid to Semiarid Climate. The total stated area of the country is 79.6 million hectares; roughly 37.1% is cultivated area, 11.5% is cultivable waste and 31% is non-arable. Total area under horticultural crops is less than 6%. The average farm size in the country is 3.1 hectares which will further decrease with each down generation due to land distribution. (Pakistan horticulture development & export board 2007). According to Ministry of Food, Agriculture & Livestock (MINFAL, 2010) Presently, the total area under fruits & vegetables (including potato crops is about 1.178 million hectares, with fruits distribution almost 69% and vegetables 31% during 2005-06. During the same year, country produced about11.840 million tons of fruits and vegetables, in which fruit shared 7.148 million tones (60.5%) and vegetables (including potato) 4.692 million tones (39.5). Ghafoor (2013) found that agriculture is back bone of Pakistan economy and contributing 21.8% to GDP. Fruits plays an important constituent of agricultural economy in Pakistan. The country is Producing and exporting a large variety of fruits which mainly includes citrus, mango, apple and dates. Among major fruit crops, mango has got a supreme position regarding its area, production and export. Ghafoor (2008) State that Pakistan is blessed with immense natural resource in term of soil season and irrigation system that make Pakistan to produce agriculture commodities. According to him due to agro climatic setting especially Indus plain are very suit for fruit

cultivation. Pakistan is producing large different types of fruits on a large area of 681,070 hectares with a total production of 5,751,800 million tones. Out of which 262 thousand tones fruits are exported from the country (Govt. of Pak, 2007). Gilgit-Baltistan is a highly mountainous and distant area covering 72,496 sq km with around 1.3 million populations (FAO, 2014). Land-use in the region is dominated by subsistence farming fruit production, livestock raising, forestry and preserving protected land and only 2% land of Gilgit-Baltistan is supposed to be cultivable for fruit production (khan, 2009). From an agro-ecological view Gilgit-Baltistan is principally well-suited for the production of deciduous fruit and dry fruit (Doolan, 1993). It provides the dependable climatic settings for the growth of numerous fruits and dry fruits such as apricots, almond and mulberry Muhammad et.al, (2015). In the Gilgit-Baltistan there is rich of fruit trees distributed all over areas Like Cherry, apricot, apple and mulberry almond are the most collective fruit in the region Saddozai et.al, (2008). The total number of plants is estimated at some 2307, 800 in the Gilgit-Baltistan (Shafiullah et.al, 2003).

Problem Statement of the study

Fruits and nuts are widely grown throughout the in Gilgit–Baltistan. Fruit (fresh and dried) production is constrained by different of factors, including the lack of cultivable land, lacking awareness about improved agricultural management practices and a lack of quality seeds Abbas et.al, (2011). There are no formal quality standards for apricot and very little market information available in Gilgit. Due to the distance from final consumer markets, producers and local traders are unaware of consumer needs and traders continue supplying poor quality and low-value apricots to auction markets down country Mir el.at, (2013). Marketing functions are performed in a traditional method and markets for fruit products may not function efficiently. There are generally great differences between prices paid by consumer and those received by producers (Khan, 1980 and Mohy-ud-Din, 1991). This study will be focus on hindrance that local farmer facing during fruit production and also will highlight implication of China -Pakistan economic corridor on local community.

Objectives

- To Study effects of China -Pakistan economic corridor on fruit industry of Gilgit-Baltistan.
- To highlight the hindrance that decrease fruit production in Gilgit-Baltistan.

Literature review

According to Sharif et.al, (2005) Pakistan is blessed with an ideal agro–ecological environmental setting which is conducive to the production of nearly thirty types of fruit like citrus, mango, apple, cheery and dates are most common. The market value of these fruits produced during 2002-03 is estimated at about Rs 73 billion, which is roughly 6.73 percent of agriculture value added in the year. According to Pakistan horticulture development & export board (2007) traditional Pakistan is an agricultural country and agricultural sector is still considering main contributor in Pakistani economy with almost 21.6% share of GDP. The sector is also playing an important role in employment generation particular in rural communities where an estimate 95% of total employed opportunities. Horticultural is sub sector of agricultural sector which also main sector of agricultural economy by contributing about 12% to the national agricultural GDP.Khan (2016) Stated that Allah almighty has gifted the suitable land that is most suitable for delicious fruit production with high quality fruit and vegetable and consider primary source of income generation in whole GB. The total fruit production in Gilgit-Baltistan is 149769 Metric tons (Apricot 108588, Apple 19054, Grapes 6413, Pear 2579, Peach 3308, Pomegranate 4287, Cherry 2256, Mulberry 9092, Walnut 5992, Almond 1700 and Sea buckthorn 3600.He also argued that unfortunately pre and post-harvest losses of fruit are 50-70 % every year due to lack of Due to lack of processing, preservation, testing, transportation, communication and research large amount of fruit, vegetable goes wasted and does not reach in market because fruits are highly perishable. Agricultural marketing infrastructure plays vital role in improving functioning of agriculture marketing system. According to Tusneem (2009) effective logistic systems improve functioning of market system. If the transport services are infrequent, of poor quality or expensive then farmers will be at a disadvantageous position in selling their crops as an expensive service will lead to low farm gate prices (the net price the farmer receives from selling his produce). In low income countries agriculture is consider major sector. Its play a vital role in income generation and employment in rural areas (Reardon et al., 1998; Haggblade et al., 1989). There has been a great relationship between infrastructure developments and sustained out growth demonstrated by many international studies (Aschauer, and Canning, 1998). Binswanger et.al, (1987) collected data from 58 countries and found that positive and significant correlation between road development and overall agriculture output. These views have also been supported by many Asian studies (Ruttan, 2002; Mundlak et al.,

2004). Institutional commodity flows Figure Shows the institutional chain map for GB Fruits. Production is carried out by smallholder producers who also carry out the drying process. The majority of the harvest is dried and sold down-country through auctions. Dry fruit are bought at farm-gate by collectors/traders or delivered to wholesalers based in Gilgit. The wholesalers in Gilgit usually operate a retail store in the market and trade in several agro-food products, e.g. apricot, cherry, walnut and almond. The Gilgit wholesaler carries out some cleaning and sorting and bag the dried fruit into 50kg hessian bags for transport down-country and sale to wholesalers or through auction markets in other regions. There are a few small processors in Gilgit who carry out additional transformation of the dried fruit into a high-value product for export. Dried fruit are bought direct from farmers, then cleaned and graded. The dried fruit is packed in Gilgit, transported overland to Karachi and shipped in a container via Felixstowe to buyers in UK. Dry fruit oil processors also buy the discarded kernel from farmers, extract the oil and package it for sale to customer's down-country. Fresh apricot is often bought as a standing crop by a down-country 'contractor'. The contractor pays a lump sum to the farmer and then organizes the harvest, packing and transport of the apricot to auction markets down-country

CPEC and Fruit Industry of GB

Faraz (2016) Stated that CPEC would open Chinese and central Asian market for Pakistan fruits like orange, apples, cherries, dates and banana etc. It will give more opportunities of sources livelihood. CPEC will also provide new technology like pesticides, seed, and fertilizer. Rafi et.al, (2016) argued that CPEC will actually exploration of china economy which will bring stability and prosperity in Pakistan, once it will have built it will provide any gateway to access middle east and central Asia faster, easier and cheaper way. He further argued that it will connect different province will enhance local economies. The region of Gilgit-Baltistan is known for its fresh fruit exports, like cherries, apricot and apples, CPEC will be a game changer by opening business opportunities for the region's traders. This will provide local traders with an advantage and help them double their sales by tremendous saving in cost of transportation. Presently, fruits are being exported through air-cargo via Dubai it would be faster and cheaper if the same could be sent by road to China via Xinjiang.

Table (1) Fruits grown in GB

Fruit Species	Number of Varieties
Almond	3
Apple	17
Cherry	28
Grapes	13
Mulberry	8
Olive	4
peach	6

Source: FAO, 2010

Research Methodology

Study Area

For this study District Nagar was selected which one the ten district of GB situated in North of Pakistan is boarding with China. Before 2016 it was part of District Hunza–Nagar and now it becomes a new District. District Nagar is located at distance of 60 km from city Gilgit. District Nagar comprises of two tehsils namely Nagar -1 and Nagar -2. Moreover, this district characterizes by main contributor of fruit production ever year farmer of this district cultivate different type of fruit which help them to sustain their livelihood, on the other side it is doorway to CPEC connect both Pakistan and china. For this research Nagar -2 was selected as study area within Nagar-2 two villages namely village Minapin and Syedabad were selected.

Sampling Technique and Target Population

For this study 70 respondent (local farmer) from Manpin and 22 respondents (local farmer) from Syedabad were selected through simple random sampling, 20 respondent (Shopkeeper) from Gilgit market were selected through simple random techniques 10 middlemen were also selected from both villages through snowball sampling technique. The main objective of selected different study area was to develop a link between CPEC and fruit industry.

Data Collection

For this study both primary and secondary data were collected. Primary data was collected through structured and semi structured questionnaire, face to face interview, focused group

discussion and field survey.Secondary data was collected from government reports. articles, books, articles, research articles etc Data was collected through interview based questionnaire. Primary data has been collected through well design questionnaire which consist of both closed and open end questions. For close end question Likert scale was used where response of respondent marked by one point as response of question against 5- point Likert scale. For open end questions the separate space was providing to express their opinion.

Selection of sample (Total respondent)

Category of Respondents	**Male**	**Total No of Respondent**
Farmers	92	92
Shopkeepers	20	20
Middlemen	10	10
Total	122	122

Quantitative data was also collected from local farmers, shopkeeper and middlemen from both district Nagar and city Gilgit through interview based questionnaire.

Results and Discussion

Categories of Respondent	Research instrument used
Local Farmers Shopkeeper Middlemen	Interview based questionnaire Focused group discussion Observation

Quantitative and Qualitative analysis

Following are the presentations of the analyzed data and its findings from both quantitative and qualitative information given by respondents. The findings were presented in the form of tables and figures based on objectives of the study.

Table: Basic characteristics of selected respondents

Variable	Average	S.DEV	Min	Maxi
Age (years)	46.1	14.5	23	85
Education(years)	5	5.2	0	16
Household size (No)	9.5	4.8	2	25
Monthly income (Rupees)	196223	11033.7	16000	50000
Total income (Rupees)	137930.7	84605.27	30000	368000
Total land (kannal)	12.47	6.3	2	30
Land cultivation for fruit in (kanal)	4.3	2.4	1	12

Key Note Ave =average S.DEV=standard deviation Min=minimum Mar= maximum

The above table (2) Show that average age of respondent was 46.1 having minimum age 23 years and maximum 85 year. The table also show that standard deviation of all respondent were 14.5 close to minimum age of respondents. The table also depict that average education of respondent were 5 year having minimum education 0 and maximum education were 16 years. The table also that standard deviation of education level of all respondent were 5.2 years close to average education level. The table also demonstrate that average household size of all respondent were 9.5 with minimum household size 2 and maximum household 25. The table also demonstrate that standard deviation of household size was 4.8 which is close to minimum household size. The table also shows that average monthly income (rupees) of respondent was 196223 having minimum 16000 rupees and maximum monthly income were 50000. The standard deviation of monthly income was 11033.7 which is less variability to minimum monthly income. The average cultivate land were 12.47 (kannal) having minimum land were 2 (kannal) and maximum were 30 (kannal). The table also Show that standard deviation of total land was 6.3 (kanal). The table also Show that average cultivated land for fruit were 4.3 kannal having minimum cultivated land for fruit were 1 (kannal) and maximum cultivated land were 12 (kannal). The standard deviation of cultivated land for fruit was 2.4 which close to minimum cultivated land for fruits. This table also show that average total income of all respondent were 137930.7(rupees) with minimum income 30000 and maximum income 368000 (rupees).

Distribution of farmer's response against fruit production and sales in last year (%)

Statement	Decrease	Neutral	Increase
What was the trend of fruit sales since last year?	11	21	68
What does the trend of your income from fruit since last years?	4	24	**72**
With gradual development of KKH have you experienced any change in fruit production in last years?	16	10	74
With gradual development of KKH have you experienced any change in fruit sales in last years?	8	16	69

Above Table (3) Show that the high percentages for increase is 74 % against the statement with the gradual development of KKH have you experienced any change in fruit production in last years. The table also depict that high percentage for increase is 72 % against the statement what does the trend of income from fruit since last years. The highest percentage for increase is 69% against the statement with gradual development of KKH fruit sales has been changed. The tables show that highest percentage of decrease is 16 % against the statement that with gradual development of KKH have you experienced any change in fruit production in last years. The height percentage decrease 11% against the statement what was the trends of fruit sales in last two years. The high percentage of natural is 24 % against the statement what does the trends of your income from fruit since last two years.

Distribution of shopkeeper's response against fruit sales and fruit production in year (%)

Statement	Decrease	Neutral	Increase
What was the trend of fruit sales since last two years?	20	15	**65**
What does the trend of your income from fruit since last two years	30	15	**55**
With gradual development of KKH have you experienced any change in fruit production in last two years	20	5	**75**
With gradual development of KKH have you experienced any change in fruit sales in last two years	5	10	**85**

Above table (4) demonstrate that highest percentage of increase is 85% against the question with gradual development of KKH have you experienced any changed in fruit sale in last years. While answering this question respondent claimed that KKH enhance communication between GB with the rest country due to which fruits sales rate is increasing with passage of time. The table also

shows that highest percentage is 75% against the question that with gradual development of KKH have you experienced any change in fruit production in last years. It was asked from respondent that what was the trends of fruit since last years, the answers were positive 65% respondent were claimed that fruit sales were increased, 15% claimed that they have no experienced in change of income and 20% respondent claimed that their fruit sales were decrease. The table also show that high percentage of increase is 55% against question what does the trend of your income from fruit since last two years. The high of percentage of decrease 30% against the statement.A separate focused group discussion holds with shopkeepers and asked question about role of KKH in change of means of transportation "The role of KKH is undeniable fact it connects GB with other parts of country and changed modes of transportation. One of respondent claimed that it was the time when we have no vehicle to transport our commodities to other parts of country in that situation we used different animals as means of transportation due to which we lose our fruits especially fresh fruits. One of educated respondent claimed that KKH changed not merely mode of transportation it changed types of fruits as well. There was time in GB special Nagar we were grow only dry fruits but now we can grow multiple types of fruits.Some of Middlemen linked their income trends with KKH "Since last couple of years we have seen our income has been increasing constantly due to improve in accessibility to farmer field at right. Middlemen belong from village manipin were totally claimed that KHH reduced distance, transportation cost even it improve supply- chain of fruits. Now we can provide fruits to market at right time".

Distribution of farmers, shopkeepers and middlemen response against the fruit production constraint (%)

Types of respondent	Pest and diseases	Water shortage	Birds damaging the fruit	Tradition method of production
Farmers	20	5	25	60
shopkeepers	22	5	7	52
Middlemen	20	0	10	70

This table show that opinion against response the constrained that production. This table shows that 60% farmers claimed that traditional method of production is one main constrained of fruit production, while 25% farmers argued that birds damaging the fruit. 52 % percentage

shopkeeper claimed that traditional method of production lead low production, while 22% shopkeepers show that pest and disease destroy fruits. This table shows that 70% middlemen claimed that traditional method of production is main factor that lead low production.

Conclusion

It is obvious that CPEC is a game changer for whole region particular those areas where CPEC route and upcoming future development activities will take place. Although it will integrate neighbor economies however Pakistan will get most benefit.GB is considering gate way of CPEC and consider it will get more benefit from CPEC. Despite the fact that it will containment natural environment of GB but enhance connectivity with other countries which uplift living standard of local farmers. CPEC consist of many routes and channels which will passing through different part of GB which will enable local farmers to export their agricultural product to other part of country, as they had experienced previously with development of KKH.

It was derived from research there were strong linkages between CPEC and fruit industry of GB, that it will open new opportunities for local people to boost their production and uplift their livelihood sources. As 74% farmers, 85 % shopkeepers and 90% middlemen agreed with the statement that with gradual development of KKH their income has been increase since couple of years. The research also depicts that 74 % farmers, 75% shopkeepers and 78% middlemen were agreeing with KKH enhance their production with the passage of time. 90% farmers, 80%, shopkeepers and 86% middlemen were agreed with CPEC will improve communication following to this question 87% local farmers, 85% shopkeepers and 90% middlemen agreed that it will reduced transportation cost which further strength comparative advantage of our fruit industry. It is also concluded 80% farmers 60% Shopkeepers and 70% middlemen were claimed that CPEC will boost local fruit industry. As CPEC is mega project which consist of many infrastructure project 80% farmers, 81% Shopkeepers and 67 middlemen argued that it will strengthen Supply-Chain of fruit in GB. This research also concludes that negative implication of CPEC on GB environment i.e. 80% local farmers, 85% shopkeepers and 90% middlemen claimed that CPEC will further lead climate change in GB, following this question 73% farmers, 70% shopkeepers and 80% middlemen agreed that CPEC will lead land degradation. 75% farmers, 80% Shopkeepers and 50%middlemen claimed that after implementation of CPEC local fruit industry will not able compete Chinese export.

It is also concluded that in GB both means and types of fruit has been change with passage of time because it enhances monetary value of fruit in GB as 80% farmers claimed that they were planted in their field due high monetary value. The study also revealed that 79% famers, 80% Shopkeepers and 90% middlemen expected that after implementation of this project accessibility to other part of country will improve. The study also finds that 75% farmers, 60%shopkeepers and 80% middlemen claimed that after implementation of this project life standard of farmers will improve. It is also derived that 60% farmers, 65% Shopkeepers and 50% middlemen were claimed that after implementation agricultural sector will boost. This study found that average Gross production of fresh fruit in Manipin was greater than Gross production in Syedabad on the other side Gross production dry fruit in Manipin was less as compare to Gross production of dry fruit in Syedabad.The study also revealed some constraint that local farmers facing during fruit production which decline overall productivity of fruit. 80% farmers claimed that they have no access to market through proper road, 94% farmers claimed that they have no access to cold storage facilities. They study also revealed that 45%local farmer claimed that biggest hindrance in fruit production is lack of transportation while 54% shopkeepers claimed that low price is main hindrance in fruit production. From qualitative data it is concluded that farmers were much excited toward CPEC and claimed that after implementation of this project their fruit production further will be enhance, while some of aware farmers were afraid that CPEC will degrade their natural environment and reduce land utilization will create many problems like climate change and other natural hazard. Some shopkeepers and retailer also claimed after implementation local fruit market will not compete Chinese export.

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