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RESEARCH ARTICLE

STUDY ON POSSIBLE FORTHCOMING SCENARIO OF NEPALESE TEA SECTOR ANALYZING THE ONGOING STATUS ON PRODUCTION, TRADE AND MARKETING

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ABSTRACT

Along with significant contribution in livelihood of smallholder farmers, Nepalese tea is one of the potential sectors for foreign trade. This study aims to depict the possible forthcoming scenario on production, marketing and trade of Nepalese tea sector with thorough analysis of existing condition. Problem identification and ranking was done by household survey of 130 samples selected randomly from Suryodaya municipality and Rong gaupalika of Illam district while trend analysis was done for the secondary data collected from secondary sources. Study revealed that, Jhapa and Illam district shares almost 86% of total area cultivation and 99% of total national production. India is the major niche market for Nepalese tea trade contributing almost 96.7% of total national export and almost 90.6% of total import. Up to the year 2018/19, area, production and export of Nepalese tea was increasing but in the year 2019/20, sudden significant decrease is realized which was mainly because of border restriction due to COVID situation. Considering the socio-economic effects that could arise just because of poor performance of this sector, Presently, Government support on input supply, technical facilitation to the smallholder farmers, reasonable price fixation, inclusion of value addition, certification and trademark for Nepalese tea, strengthening of tea cooperative and companies, long term abolition of barriers in trade with India are the major addressing issues for the sustainable growth and development of tea sector in Nepal.

KEYWORDS

Nepalese tea, Production, Trade, sustainable growth, development

1. INTRODUCTION

The tea (*Camellia sinensis*) is a species of evergreen shrub or small trees in the flowering plant family of Theaceae whose leaves and buds are used to produce tea. The cultivated plant species *Camellia sinensis* is the source of the raw material from which the popular tea beverage is processed. After water, tea is the most popularly consumed beverage worldwide with a per capita consumption of 120 ml/day. It contains abundant number of polyphenolics, particularly flavonoids. Flavonoids are phenol derivatives synthesized in substantial amounts (0.5% to 1.5%) and variety (more than 4000 identified), and widely distributed among plants (Hajra and Yang, 2015). Due to the presence of important chemicals, it is one of the important plants from the health perspective. Chemical present in tea leaves are major elements to reduce many cardiovascular diseases like hypertension, coronary heart disease, Atherosclerosis, endothelia cell function. Tea is useful to reduce the chance of many cancers like breast cancer, lung cancer, stomach cancer and bladder and kidney cancer (Suzuki et.al., 2016). It also provides immunity against many diseases thereby playing important role to improve health condition of people.

Globally tea is produced in 5.07 million hectare of land having production of 6.49 million tonnes which comprises global productivity of 1279 kg per hectare. Asia region is one of the potential areas for tea production. Asia region contributes almost 85% of the global tea area, 82% of total global production having productivity of 1236 kg per hectare. In 2015, area harvested, total production and productivity of tea in Asian region was 3.46 million hectare, 4.98 million tonnes and 1440 kg per hectare respectively while it was 2.81 million hectare, 3.84 million tonnes and 1368 kg per hectare in the year 2010. Southern Asian region including India and Nepal is one of the potential areas for tea cultivation. In the year 2019, total area under tea, total production and productivity was 927 thousand hectare, 1.86 million tonnes and 2045 kg per hectare respectively (FAOSTAT, 2022). In Nepal, tea is cultivated in almost 60 districts covering the eastern terai to mid hills and extends up to western terai and mid hills.

Among those sixty districts, Jhapa district comes first in total area of cultivation and production followed by Illam, Panchthar and Dhankuta. In 2018/19, tea was produced in 28.7 thousand hectares of land having production of 25.2 thousand tonnes comprising the productivity of 877 kg per hectare but in the year 2019/20, area under tea production was reduced by 39% and at the same time production in that year reduced by only 12% (NTCDB, 2022). In Nepal, orthodox and CTC tea are the major dominant type. The orthodox tea is produced in the mid and hill hills geography while the CTC tea is produced mainly in the low hills especially in Jhapa and Illam district of Nepal. Tea subsector contributes about 0.0205% to the national gross domestic products (GDPs) and 0.0547% to the agricultural gross domestic product (AGDP) (CBS, 2017). Tea possess high export potential which is helpful for attracting the foreign currency, income generation of rural household helps to eradicate the existing rural poverty, and thus ultimately uplifting the living standard of the Nepalese farmers (Adhikari et al., 2017).

World tea market demand is growing in volume and quality and provides new opportunities for small producing countries. Presently, public as well as private sectors has taken the integrated approach to set a new way forward for the development of this promising sector. Both the Government and the private sector of Nepal have selected tea as priority

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sector part of the Nepal Trade Integration Strategy and have taken a concerted approach to set a new way forward for the development of this promising sector (NTIS 2016). For the development of this sector, government of Nepal has formulated national export strategy focusing on improvement of Nepali tea quality with a view to increasing export revenues, diversifying export destinations and leveraging opportunities in the international market for each production grade. Being the potential crop for the export promotion thereby affecting the socioeconomic status of household, major focus is needed to increase the area, production and productivity. After becoming the member of WTO in 2004, many pro and cons were arrived in this tea sub sector also (Sapkota, 2016). Nepal can take advantage of global market through the comparative and competitive advantage in tea trade but the global standard of quality has been evergreen issue. Due to the quality and value constraints in tea subsector, Nepalese farmers are not getting potential benefit from the international trade.

Tea sector in Nepal plays a significant role in the economic life and development process. Likewise it also plays the most important role to preserve the environment. Despite higher export potential, the growth of the tea sector is constrained by various problems (Sapkota, 2016). Tea industry in Nepal is not much successful and is not able to meet the domestic and foreign demand. Though, it is cultivated from one half century, Nepal does not produce processed tea in quality as desired by the foreign market. Small farmers are not well equipped to produce quality green leaves that are desirable to manufacture quality tea in Nepal. The tea leaves produced by tea estates having relatively weak processing facilities are also not qualitative to produce a good quality made tea (Shrestha et al., 2008). Thus, the emerging spatial aspects of tea cultivation, production trend and how will the technological and socioeconomic status will affect the future of the tea sector are some of the issues of interest. Moreover, it is also essential to study the existing problems along with opportunities like marketing and value addition activities so that the farmers and other stakeholders would be aware and take appropriate plan of action.

Development of tea industry has the potential to improve the livelihood of rural population ultimately contributing a great deal on our country's economy. Higher export potential of this sector helps to earn foreign currency by exporting to the foreign countries. It has been realized that tea cultivation in Nepal can be one of the best sources of national income through foreign earnings on the one hand and as an item of production helpful in import. Analyzing the trend of area of cultivation, production, productivity, constraints and opportunities of tea sector will help to identify the gap for the development of this sector. Before formulating any plans, policies, acts and regulation, it is crucial to know the exact position of this sector. Realizing this fact, this study mainly aims to analyze the existing and ongoing trend of tea sector along with identifying the major penetrating area for the development of this sector.

Thorough analysis of past scenario of this sector will be useful to pave the successful path for the future. All the stakeholders from the policy level to farmer's level involved in this sector will be benefited by knowing the major part on trend on production, marketing and trade. Marketing and trade analysis will clearly depict the role of this sector for the improvement of major macroeconomic indicator of the country. Balance of trade is related with the production and there are multiple areas for the improvement thereby contributing in positive and sustainable trade balance. Market niche identification, strategy to take the absolute and comparative advantage thereby enhancing the competitiveness of the product is crucial to reduce the ballooning trade deficit. Analysis of these trade indicators will help to improve the trade scenario of this tea sector.

2. METHODOLOGY

This study is mainly based on primary as well as secondary data. For the primary data, purposive and simple random sampling techniques were used. Considering the total area of cultivation and production, among the 60 potential districts for tea production, Jhapa and Illam districts cover almost 86.2% of total national area and 99% of total national production (NTCBD, 2022). Among those two districts, Illam district was selected purposively for the study. Among the 10 local administrative bodies of Illam district, Suryodaya municipality and Rong gaupalika were the most potential area for tea production. So those two local administrative bodies were selected for the study. From those two local administrative bodies, 65 samples from each local bodies resulting in total 130 samples from both were collected.

For the secondary data, information was collected from National Tea and Coffee Development Board (NTCDB), Agriculture Information and Communication Center (AICC), Department of Customs and from other relevant articles. The data analysis was done using 10 years of data from 2010/11 to 2019/20 on major study variables like area cultivated, production, yield, Import and export of Nepalese tea. For the trend analysis, simple linear regression model was used. In addition, this study also uses trend lines, bar graphs and line graphs to describe the present and possible future scenario of production and trade of Nepalese tea. Likewise, to realize the global status of Nepal in tea sector, major study variables were also compared and studied with the prevailing scenario of tea worldwide. National level perspective is reflected using the government data. Critical review on production, marketing and trade was done using the relevant secondary resources to identify the forthcoming future scenario of this sector.

2.1 Problems on production and marketing

For identifying major problems of production and marketing, index was prepared based on response frequencies. Production and marketing problems were ranked by using five point level of influence comprising most serious,serious, moderate, low and very low or no problem at all using scores of 1.00, 0.80, 0.60, 0.40 and 0.20 respectively. The formula given below was used to find the index for intesity of production and marketing problems faced by tea producers. The priority index for each variable was calculated by weighted average mean in order to draw valid conclusion and making responsible decision. Index of influence is calculated by using following formula:

$$I_{inf} = \sum \frac{s_i f_i}{N}$$

Where,

I_{inf} = index of influence

Σ = summation

s_i = scale value

f_i = frequency of influence given by respondents

N = total number of respondents

3. RESULTS AND DISCUSSION

3.1 Tea in global scenario

Analyzing the demand and supply status around the world, demand of tea is increasing every year and tea contribute significant role in world beverage market. It is one of the low cost beverage having the potential role in foreign trade (Talukdar, 2017). Cultivation of tea requires specific geo-climatic condition which has confined the area of tea cultivation in certain limited regions. Asia continent is the major tea producing region where countries like China, India and Sri Lanka contribute significantly to the world tea production and market. Due to the tropical climate present in some African countries like Kenya, Malawi, Rwanda, Tanzania and Uganda, tea production and trade from these African countries is progressing. Along with these Asian and African regions, some quantities of tea are also being produced in South America (Argentina, Brazil and others), the Near East (Iran and Turkey) and the CIS (Russia and Georgia). Presently, Asia-Pacific region is considered as the largest market for tea consumption, with robust economic growth in a number of developing countries, such as China and India (Gunathilaka and Tularam, 2016). Growing economy of the Asian countries has contributed to change the consumption behavior for tea and consumers are upgrading their purchases from unpackaged tea to packed and bagged specialty varieties.

In 2017, global total tea production accounted for 5.98 million tonnes and this sector had a retail value of approximately USD 50 billion (FAOSTAT, 2022). Altogether tea was cultivated in 48 countries in 2016, which includes altogether 12 Low Human Development Countries (LHDCs) signifying the dramatic involvement of rural household. This sector is vital from the rural employment perspective and production employs 13 million people. Among those 13 million people, 9 million of whom were smallholder farmers, while the remainder works in tea estates particularly in the countries of Asian and African regions in which account for almost two third of the world's tea production, the majority of tea is produced by smallholder farmers. Because of specific climatic requirement for the production, tea production is concentered in a few countries, with the top seven growing countries accounting for 90% of the global tea supply in 2015.

The largest tea-exporting country in 2017 was China followed by Sri Lanka and Kenya, while the largest importing countries were Pakistan, Russia and the United States (Tanui et al., 2012). Domestic consumption of tea is

also high. The amount of tea consumed in China, India and Turkey in 2015 was more than in all other tea consuming nations combined. Global tea supply growth outpaced demand growth in 2016 and 2017 at rates of 4.4% and 4.3%, respectively, resulting in a surplus of approximately 200 thousand tonnes for both years. The global supply demand balance of tea closed in 2018 with a small surplus and this trend is projected to continue until 2020 (Willer and Lernoud, 2018). In all tea producing countries of the world, there exist higher domestic consumption. Almost all tea producing countries are also the largest consumers of tea, resulting in strong correlation between production and consumption.

According to the Food and Agriculture Organization of the United Nations (FAO), there was a balanced production and consumption growth of about 4.4% between 2007 and 2016. Different research has depicted that, the tea sector is expected to grow at a compound annual growth rate (CAGR) of about 4 to 5.5% from 2017 to 2024 and is projected to reach USD 73 billion in retail value by 2024 (Mordor Intelligence, 2018). Prevalence of tea culture along with the growth in health awareness and increase in the disposable income has aided the tea market growth. Moreover, introduction of additional healthy ingredients in tea by different market players are some other factors that drive the growth of the market.

However, fluctuating prices of raw materials caused by unpredictable climatic conditions act as the major restraint for this market (Mzembe, 2018). Over the past decade, trend of global tea production has revealed that global tea production has increased at an average annual growth rate of 4.7% and reached to 5.89 million tonnes in 2018. This continued growth in global production was mainly contributed by production from the china, which has almost doubled since 2009, reaching 2.616 million tonnes in 2018, that is, 44.4% of the world's teas. The global tea market size was valued at USD 55,144 million in 2019, and is projected to reach USD 68,950 million by 2027, registering a CAGR of 6.6% from 2020 to 2027 (FAOSTAT, 2022).

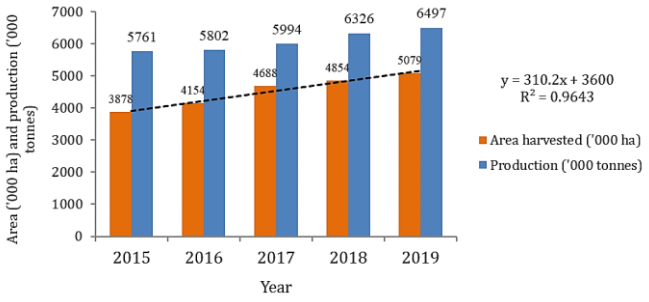

Figure 1: Global scenario of area harvested and total production of tea

In the year 2015, area harvested for tea was 3878 thousand hectare and production was 5761 thousand tonnes. Trend of area harvested and total production can be found as increasing. In the year 2017, 2018 and 2019, total area harvested and total production was 4688 thousand hectare and 5994 thousand tonnes, 4854 thousand hectare and 6326 thousand tonnes and 5079 thousand hectare and 6497 thousand tonnes respectively. Asian region is one of the potential area for tea production. In the year 2018, total area harvested and total production in Asian region was 4390 thousand hectare and 5462 thousand tonnes while in the year 2019, total area harvested and total production in Asian region was 4571 thousand hectare and 5650 thousand tonnes respectively indicating the increasing trend for area harvested and production (FAOSTAT, 2022). In the year 2019, global area harvested of tea increased by almost 30.96% while production increased by almost 12.77% than in 2015. Global increase in tea production is the result of increase in global tea area rather than productivity. Global trend of tea cultivation and production suggest that, area and production of tea in Asian and African region is increasing indicating the increased domestic consumption and foreign trade.

3.2 Tea in Nepalese scenario

Among the different varieties of tea, *Camellia sinensis var. sinensis*, *Camellia sinensis var. assamica*, and *Camellia sinensis var. lasiocalyx* are the dominant varieties in Nepal (NTCDB, 2022). Among these three varieties, *Camelia sinensis var. sinensis* is planted for orthodox tea, whereas *Camelia sinesis var. assamica* and *Camellia sinensis var. lasiocalyx* are planted for CTC. Nepali orthodox tea is mostly produced in country's hilly region and is especially known for its aroma, bright color, and fruity flavor. Likewise, CTC tea of Nepal is mostly grown in terai and inner terai rergion and is famous for its strong, bright, and full-bodied taste. In the year 2015, tea market in Nepal was equal to 82.30 million USD. It is assumed that, Until 2025, the tea market in Nepal will reach to 223.63 million USD, indicating the increasing trend at a CAGR of 9.36% per annum for the period 2020-2025 (Adhikari, 2019). This is a decrease, compared to the growth of about 12.19% per year, registered in 2015-2019. From the consumption side, average consumption per capita in value terms reached 2.91 USD per capita in 2015. In the next five years, it grew at a CAGR of 10.89% per annum. In the medium term (by 2025), the indicator is forecast to slow down its growth and increase at a CAGR of 8.19% per annum (Kalauni et al., 2019). Mainly because of changing consumption pattern and increasing health awareness, tea market has been evolving dramatically in the past few years.

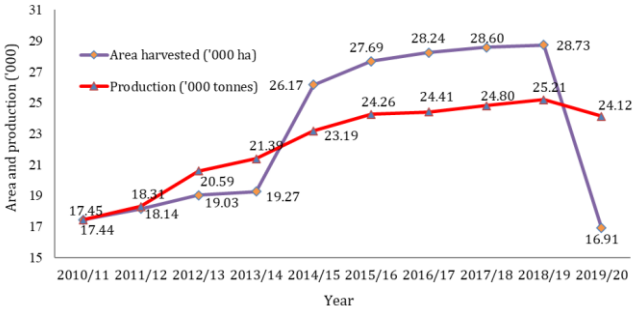

Figure 2: Area harvested and production of tea in Nepal

During the period of 2010/11 to 2018/19, area under tea cultivation and total production was increased while in the year 2019/20 both those indicators were decreased. In the year 2010/11 total area under tea cultivation and total production was 17.45 thousand hectare and 17.44 thousand tonnes respectively. In the coming year 2011/12, total area was increased by 3.95% while total production was increased by 5%. During the period of 2012/13 to 2018/19 average increase in total area and total production was 7.35% and 4.74% respectively. In the year 2018/19 total area and total production of tea were 28.73 thousand hectare and 25.21 thousand tonnes respectively but in the year 2019/20, total area decreased by 41% and total production decreased by 4.31% respectively (FAOSTAT, 2022).

Among the 66 districts having the potentiality to produce tea, Jhapa and Illam are the major districts having the contribution of alomost 86% to total national area and almost 98% to total national production. Jhapa district one contributes 43.4% of total national production area and 72.2% of total national production. Despite the trade potential of this sector, tea industry is lagging behind in terms of technology and expertise, timely availability of inputs, credit availability, quality standard to trade in international market, certification and mainly lower per unit revenue due to low value addition and lack of Nepalese tea trademark. Cumulative effect of all these factors along with the constraints caused by COVID in input supply, technical facilitation, marketing and trade had resulted the decrease production, area and trade of tea in 2019/20.

Table 1: Area and production of tea in Nepal

District	Area (hectare)	Percentage of total national area (%)	Production (Tonnes)	Percentage of total national production (%)
Jhapa	7339	43.41	17429	72.27
Illam	7236	42.80	6534	27.09
Panchthar	675	3.99	56.2	0.23
Dhankuta	383	2.27	25.5	0.11
Terhathum	123	0.73	19.3	0.08
Nuwakot	81	0.48	16.72	0.07
Sindhupalchowk	85	0.50	8.23	0.03
Kaski	69	0.41	6.2	0.03

3.3 Import and export scenario of tea in Nepal

During the period of 2010/11, Nepal had imported 306 tonnes of tea from other countries while in the year 2011/12, imported quantity was increased by 13.7% and volume reached to 348 tonnes. During the year 2013/14, import quantity of tea was reduced by 17.2% compared to the import quantity of previous year and again increased in the year 2014/15 with 24.6% which had accounted the total volume import of 374 tonnes. In the year 2018/19, total quantity of imported tea was 343 tonnes while in the year 2019/20, this quantity was reduced by 36.7% and reached to 218 tonnes (FAOSTAT, 2022). In Nepal, import of tea is irratic having the highest import volume in 2014/15 and lowest import volume in 2019/20. Dramatic reduction in import quantity of tea in 2019/20 was mainly due to the restriction in trade because of COVID pandemic.

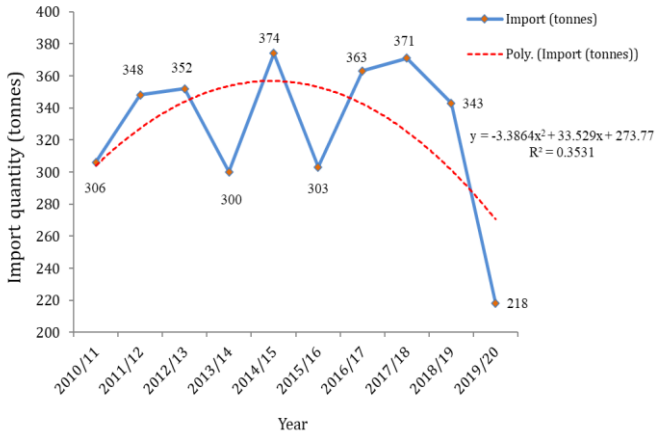

Figure 3: Import scenario of tea in Nepal

Analyzing the tea export trend of the previous year, we can say that trend is increasing. However, in the year 2019/20, total export of tea was decreased. During the period of 2010/11, Nepal have exported 10532 tonnes of tea in foreign market giving the value of NRs. 154.9 million but in the year 2011/12, total export quantity was reduced and reached to 9198 tonnes. Again, in the year 2012/13, total export quantity was increased by 16.3% compared to previous year and reached to 10708 tonnes giving the worth of NRs. 204.3 million. During the period or 2010/11 to 2019/20, highest export can be seen in the year 2017/18, having the export quantity of 15648 tonnes and export value of NRs. 325.16 million. Comparing to the year 2018/19, export quantity of tea was reduced in the year 2019/20 reflecting the export quantity of 11185 tonnes giving the value of NRs. 278.2 million (NTCDB, 2022).

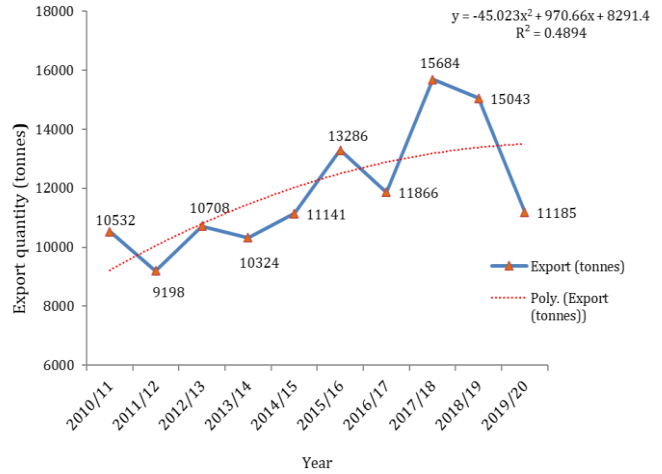

Figure 4: Export scenario of tea in Nepal

Nepal used to import tea from the different nations of the world. Trade data developed by NTCDB suggest that among the various countries that Nepal import tea, India is the major country. In the year 2019/20, Nepal has imported almost 198.1 tonnes of tea from India, which is almost 90.6% of total import. Beside India, Nepal imports tea from China, Srilanka, Thailand and Italy. In the year 2019/20, China shares 13.9% of total import of tea by Nepal (NTCDB, 2022).

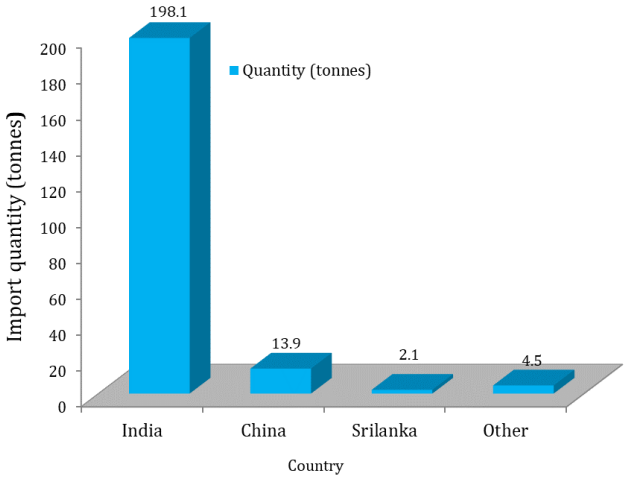

Figure 5: Import destinations and imported quantity of tea in Nepal during 2019-20

During the fiscal year 2019/20, Nepal had export almost 11,185 tons of tea worth NRs. 2.78 billion. The board's records showed that the decline in export quantity was due to the decline in domestic production. Compared to 25,205 tons of tea produced in 2018/19, the production volume stood at 24,118 tons in 2019/20 (NTCDB, 2022). Study conducted on market and trade of Nepalese tea has revealed that about 60% of the orthodox tea produced in Nepal is exported to Europe and Japan. The European, American and Asian regions are the emerging market to trade Nepalese tea. According to the data of NTCDB, India is the major exporting country for Nepalese tea which shares about 96.7% of total national export. During the period of 2019/20, Nepal has earned NRs. 278.2 million from the export of tea.

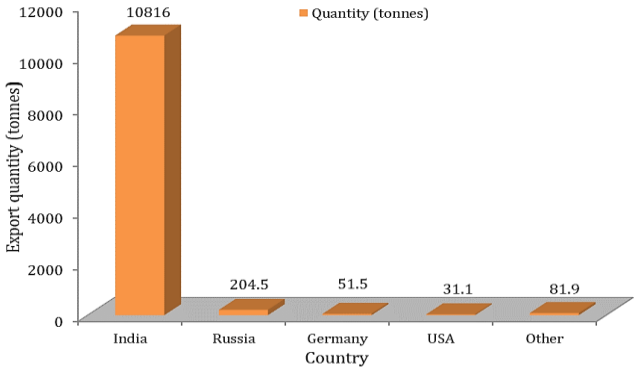

Figure 6: Export destinations and exported quantity of tea in Nepal during 2019-20

3.4 Major associated factors influencing the tea production

A five-point scaling technique (1, 0.8, 0.6, 0.4 and 0.2) was applied to rank the factors influencing the tea production based on the farmer's perception. The value obtained from the rank scale showed that good return from the tea production was the most decisive factor with index of 0.763 followed by the geographical suitability with index value of 0.71, higher market demand of tea with index of 0.678, tea production being traditional occupation with index of 0.672 and lastly prior knowledge on tea production than other crop production with index of 0.661 (Table 2). The higher income from the tea production along with the increasing market demand attracted the producer in expanding the cultivation area of the tea in the previous year.

However, in the year 2019/20, COVID pandemic has severely hitted this sector resulting in decreased cultivation area and production. Climatic condition of mid hills regions favors the production of Orthodox and CTC tea. Comparing with other crops, tea production has absolute as well as comparative advantage in this area. Emerging demand in the European, American and Asian market resulted in higher income to the smallholder farmers thereby improving the livelihood of the farmers. Among the several factors associated with tea production, higher per unit return and suitable geography and increasing market demand are the most affecting factors in tea production.

Table 2: Major associated factors influencing the tea production

Factors	Major factor (1) to Minor factor (0.2)					Weight	Index	Rank
	1	0.8	0.6	0.4	0.2			
Good return	63	22	16	16	13	99.2	0.763	I
Geographical suitability	42	36	21	14	17	92.4	0.71	II
Market demand	36	40	12	23	19	88.2	0.678	III
Traditional occupation	30	44	19	18	18	87.4	0.672	IV
Prior knowledge	25	37	40	12	16	86.6	0.661	V

3.5 Major problems related to tea production

The value obtained from the ranking scale revealed that inadequate government support was the major problems related with tea production with highest index value of 0.729. Similarly, farmers had faced serious problems of lack of quality inputs for the production of organic and inorganic tea production in the study area, which ranked second most serious problem among the categorized problems with index value of 0.693. Likewise problem of pest and diseases ranked third among the categorized problems with index value of 0.687 followed by problem of unavailability of farm labor with index value of 0.621 and problem of lack of technical knowledge on tea production with index value of 0.593 (Table 3). Study conducted found that common looper, red slug caterpillar, leaf roller, stem borer, root borer and aphids are the major insect pest of tea and had resulted degradation in quality and up to 43% yield loss (Shrestha and Thapa, 2015).

Likewise, among the various disease of tea, fungal and viral disease are the most persistent resulting in up to 85% yield loss due to fungal disease and up to 100% yield loss due to viral disease (Pandey et al., 2021). From the government side, policy constraints related with formulation and implementation of minimum support price hindering the attainable profit for the smallholder farmers (Bhattarai and GC, 2020). Among the tea producing farmers, majority are smallholders and depend on this sector for their livelihood and income. Prevailing cultivation knowledge of those farmers is not sufficient for higher and economic production. Realizing this fact, study conducted by found that adequate, efficient, and effective extension service is needed for the higher quality and quantity production of tea (Katuwal, 2020).

To increase the competitiveness of the product in foreign market, branding and certification of Nepalese tea is utmost but current complex and higher quality standard formulated by international trade organization hindering the certification process (Mishra et al., 2019). Likewise, smallholder tea producing farmers are not able to meet quality competition resulted from free trade concept of WTO. In the study area, tea producing farmers reported that government prioritization is still not adequate, and they are facing mainly quality inputs related problems, insect pest related problems and certification related problems in the study area.

Table 3: Various production problems related to tea production faced by tea producers

Problems	Major problem (1) to Minor problem (0.2)					Weight	Index	Rank
	1	0.8	0.6	0.4	0.2			
Inadequate government support	55	25	16	17	17	94.8	0.729	I
Lack of quality inputs	42	34	15	21	18	90.2	0.693	II
Infestation of pest and diseases	34	37	28	14	17	89.4	0.687	III
Unavailability of farm labor	40	22	10	28	30	80.8	0.621	IV
Lack of technical knowledge	31	25	18	21	35	77.2	0.593	V

3.6 Major marketing related problems of tea sector

The value obtained from the ranking scale revealed that the problem of more gap between farm gate and retail price had the highest index value of 0.812 and ranked as major marketing problem among categorized problems followed by low seasonal price/price fluctuation which had index value of 0.735, problem of lack of market information showing index value of 0.724, problem of rejection of crop by traders reasoning low quality with index value of 0.713 and problem of transportation and inaccessible market with index value of 0.684 (Table 4). Despite the potential health, trade and economic benefit of tea in Nepal, several fragile weakness and threats for the development of this sector is noticeable.

Due to the climatic dependence for production and unstable production pattern, supply side capacity of country is becoming immersing challenge for the establishment of long-term partnership with national and international markets agents. Per unit production advantage from tea sector is achieved only with improving the status of the domestic tea estate. Tea producing farmers are not technically equipped. So, there is urgent need of adequate, efficient, and effective extension services to the tea growers for improving their cultivation and management practices. Comparing with other crops, Initial crop establishment cost is higher for the tea cultivation and to reduce this cost, subsidy on the tea seedling is vital for encouraging farmers to grow tea.

Overall production cost of the farmers can be minimized with the use of innovative and modern mechanization technology and this sector should be mechanized by introducing innovative and advance modern technology, tools, and equipment which will help to boost the tea production and attract more farmers in this sector. Among the other factors, climatic factors are the major reasons for the changing production volume. Unstable production have resulted the unstable market price of tea. Farmers are not getting the reasonable price of tea. To reduce this issue, price fixation of the orthodox tea and green leaves is urgent need. Competitiveness of tea sectors can be achieved with several techniques like value addition, branding and certification. However, tea industry is suffering from policy issue regarding the certification of Nepalese tea. Analyzing the increasing competitiveness in the international market, Nepal has to make easy and cheap procedure of the certifying domestic tea in farm level.

Table 4: Various marketing related problems of tea producing farmers in the study area

Problems	Major problem (1) to Minor problem (0.2)					Weight	Index	Rank
	1	0.8	0.6	0.4	0.2			
More gap between farm gate and retail price	64	33	16	11	6	105.6	0.812	I
Low seasonal price/Price fluctuation	52	26	22	18	12	95.6	0.735	II
Lack of market information	45	31	25	18	11	94.2	0.724	III
Rejection of crop by traders reasoning low quality	41	27	34	21	7	92.8	0.713	IV
Transportation problem and inaccessible market	35	38	22	17	18	89	0.684	V

4. Conclusion

Recently, Nepal is experiencing increasing trade gap in agricultural sector. However, Nepalese tea is the most potential exportable commodity realizing the yearly export of thousands of tonnes in international market. This sector is contributing significantly in the livelihood and income of rural smallholder farmers. Identifying the trade potentiality of this sector, public and private sectors are working together making this sector more competitive. As a result, up to the year 2018/19, trend of area, production and export of Nepalese tea was increasing but in the year 2019/20, sudden decrease is realized. India being the major import and export destination of Nepalese tea, border restriction due to COVID situation resulted in decreased trade. Presently, emerging issue of irregular input supply, inadequate government support, low level of technology and expertise, frequent restriction in trade in international market due to imposed higher quality standards are the major addressing factors to promote this sector. Despite the absolute and comparative advantage of growing tea in Nepal, policy prioritization addressing the technical facilitation on production and trade is the utmost. Removing barriers in trade with India along with the improvement of quality of Nepalese tea by addressing the major problems faced by producer, processor and trader could be the best way to make this sector more competitive and profitable. Government support on input supply, technical facilitation, price fixation, value addition, certification, marketing and international trade are the major addressing issues for the sustainable development of tea sector in Nepal.

Author's Declaration

The authors declare that there is no conflict of interest for the publication of this paper. All authors have read the final manuscript and approved the final version.

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