

From Leaves to Markets: Assessing Nepalese Tea Trade in the WTO Era

Final Report

Submitted by

Gaurab Luitel, Tribhuvan University, Institute of Agriculture & Animal Sciences

Binayak Malla, Kathmandu University School of Management

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Acronyms

AD	Anno Domini
ADS	Agriculture Development Strategy
AoA	Agreement on Agriculture
CFL	Central Food Laboratory
CTC	Crush Tear Curl
DoC	Department of Customs
DRC	Domestic Resource Cost
EU	European Union
FAO	Food and Agriculture Organization
FTA	Free Trade Agreement
FY	Fiscal Year
GATT	General Agreement on Tariffs and Trade
ITC	International Trade Center
KUSOM	Kathmandu University School of Management
LDC	Least Developed Country
MoAD	Ministry of Agricultural Development
MoC	Ministry of Commerce
MT	Metric Ton
NPC	Nominal Protection Coefficient
NRs	Nepalese Rupees
NTBs	Non-tariff Barriers
NTCDB	National Tea and Coffee Development Board
NTDC	Nepal Tea Development Corporation
NTIS	Nepal Trade Integration Strategy

R&D	Research and Development
SPS	Sanitary & Phytosanitary
TBT	Technical Barriers to Trade
TEPC	Trade and Export Promotion Center
USA	United States of America
WCP	WTO Chair Program
WTO	World Trade Organization

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Abstract

Tea is one of the major exportable agricultural commodities of Nepal. This study explores the implications of Nepal's accession to WTO in the tea trade with objectives of identifying potential opportunities and challenges. The study was conducted in Jhapa and Ilam through structured interview on 5 tea processing units in each district. Moreover, secondary data were obtained from the trade portals and database available at the public domains. The data collected were analysed by both qualitative and quantitative techniques. While qualitative analysis involves investigating the provisions of the WTO agreement that affects the global trade of tea, quantitative techniques were used to make comparative analysis of the growth between pre and post WTO accession scenarios. The study found that WTO membership has opened up a plethora of opportunities as the increase in tea exports from Nepal can be attributed to its membership in the WTO, notably seen in the fiscal year 2003/04 when it joined WTO. Moreover, the competitive analysis using Nominal Protection Coefficient (NPC) and Domestic Resource Cost (DRC) illuminated the trade dynamics of CTC and Orthodox teas. While the findings revealed a cost-competitive edge in the export market for Orthodox tea ($NPC=0.67$), the export market presented challenges in case of CTC ($NPC=1.15$) due to over-dependence in India. The DRC ratio of 0.86 and 0.80 for CTC and orthodox tea respectively provides strong evidence that Nepal has comparative advantage in producing both types of tea. Finally, the study suggests some policy recommendations to harness the benefits of the WTO membership.

Keywords: *Competitive analysis, Export potentiality, Tea and WTO*

From Leaves to Markets: Assessing Nepalese Tea Trade in the WTO Era

1. Introduction

1.1 Background

Tea, one of the most important cash crops of Nepal, significantly contributes to the economy of Nepal by offering opportunities for rural employment, income generation and poverty reduction. The suitable agro-climatic conditions of the eastern districts including Jhapa, Ilam, Panchthar, Dhankuta and Terathum, makes it highly conducive for tea farming. These regions, characterized by their lush landscapes and temperate climates, provide an ideal setting for the cultivation of premium quality tea. While the plains of Terai are producing CTC (Crush, Tear, Curl) tea, the productions in the hills are specialized in Orthodox and Green Tea.

For the competitive and comparative advantages the sector pose, tea has been identified as a prioritized product by the Nepal Trade Integration Strategy (NTIS), 2016 (MoC, 2016). Moreover, the Agriculture Development Strategy (ADS), 2015-2035, a long-term vision for the development of agriculture sector in Nepal, has recommended specific program for the value chain development of tea (MoAD, 2015). This strategic focus by the Government of Nepal on tea underscores its role in Nepal's agricultural trade and its potential for further growth and economic contribution.

In the prevailing interconnected world, tea sector is not isolated from the landscape of international trade. An important milestone was reached when Nepal joined the World Trade Organization (WTO) in 2004, especially in the context that it was the first Least Developed Country (LDC) to join the global trade regulating body. The primary objective of WTO is to open up trade for the benefit of all and contribute towards global economic growth and development. It aims to provide a forum to its member countries to facilitate trade, with an emphasis on openness and transparency (WTO, 2023).

WTO membership is regarded both as an opportunity and challenges as it is members by both wealthy nations and the agrarian countries. In addition to giving domestic producers access to international markets, the membership opens door of the domestic market for foreign businesses as well. National and local companies have to be competitive – in both export and domestic market – in order to get advantage of the membership (Sharma & Karkee, 2004). Due to this duality, domestic businesses must improve their competitiveness in order to fully reap the benefit of WTO membership.

In the FY 2021/22, Nepal exported 16,229,546 kg tea to India which accounts for 97.80% of the total tea exports (DoC, 2023). It indicates that Nepalese tea producers are excessively dependent on the Indian buyers. This heavy reliance on Indian market raises serious concerns on the vulnerability of Nepalese tea growers to the fluctuating policies adopted by the Government of India. In May 2018, tea exports from Nepal to India were halted when India introduced a policy requiring Nepalese tea to follow higher quality requirements and certification procedures (Prasain, 2022). This episode exposed the vulnerability of Nepalese tea traders due to the over dependence on India as the main market.

In this context, it has been crucial to understand how Nepal's WTO membership has affected its tea industry and to identify the unique opportunities and challenges for expanding market access and boosting competitiveness. With a comprehensive analysis of the effects of Nepal's WTO membership on the tea sector during the past 20 years, this research aims to delve into these complexities. In doing so, it aims to shed lights on the strategies and policy recommendation that could enable Nepalese tea producers to thrive in global market while protecting the industry's sustainability at home.

1.2 Statement of problem

Nepalese tea has a considerable impact on the economy of nation by creating rural employment and bringing foreign currencies. However, the tea industry has faced a number of

opportunities and challenges since Nepal's accession of the WTO agreements in April 2004. With tea export values increasing by about 24 percent in the fiscal year 2019/2020 compared to that of the prior fiscal year (DoC, 2020), the tea sector in Nepal has experienced significant growth in recent years. Despite this growth, the industry still faces a number of issues, including quality control, restricted market access, and limited capacity to comply with international standards.

Trade barriers, such as high tariff rates and non-tariff barriers (NTBs) imposed by the importing countries, make it difficult for the tea industry to expand markets. Although WTO membership has significantly increased opportunities for the export of agricultural goods, for many developing nations like Nepal, it presents a more complex picture when it comes to seizing these opportunities for trade expansion. Nepalese tea industry should overcome a number of challenges to achieve its full potential and maintain its competitiveness in the global tea commerce.

This research aims to examine several challenges and opportunities that the tea industry in Nepal has to deal with, in light of the country's WTO membership. It seeks to identify the trade restrictions and barriers to market access that have an effect on the potential global exports. Additionally, with an emphasis on sustainability in the tea business, the research will assess the industry's global competitiveness and develop policy recommendations to improve Nepal's compliance with WTO regulations. The study attempts to offer insightful information by addressing these problems to support the growth, competitiveness, and sustainability of Nepalese tea sector.

This study attempts to answer following research questions:

RQ1: What opportunities and challenges do the Nepalese tea sector face as a WTO member?

RQ2: What trade facilitation measures and market access barriers need to be addressed to support the tea exports?

RQ3: How competitive is the Nepalese tea in the global market?

RQ4: What policy recommendations can be made to ensure Nepal's compliance with WTO requirements for promoting the sustainability of the tea businesses?

1.3 Objectives of the study

The broad objective of this study is to assess Nepalese tea trade in the context of WTO membership and provide recommendations for its growth and competitiveness.

The specific objectives of the study are as follow:

- i. To analyse the opportunities and challenges of the Nepalese tea sector in the context of its WTO accession.
- ii. To identify key trade measures and market access barriers that affect the export potentiality of Nepalese tea in the global market.
- iii. To assess the global competitiveness of Nepalese tea in the international market.
- iv. To make policy recommendations for enhancing Nepal's compliance with WTO requirements, particularly in the context of sustainability of the tea businesses.

1.4 Significance of the study

Nepalese tea renowned for its distinctive flavours and cultural significance contributes to the economy of Nepal. The industry has undergone considerable change since Nepal joined the WTO on 23rd April 2004. The WTO membership has several implications for trade regulations, market accessibility, and policy frameworks. Despite its significant contribution to nation's economy, the tea industry faces a number of challenges, including limited access to international markets, and low capacity to comply with the international standards and regulations.

Nepal's accession of WTO marks an important turning point that presents both opportunities and challenges in the global trade. As Nepalese tea businesses look to capitalize the benefit from the interconnected global market, the industry must navigate a dynamic environment influenced by the international trade agreements. These agreements have several implications on the growth, market access and competitiveness of the sector. It has become essential to conduct a comprehensive analysis of Nepalese tea sector in the context of the WTO membership over the past 20 years.

Furthermore, as Nepal struggles to increase its tea exports, it must negotiate on trade restrictions and barriers in entering new markets, which are legitimately imposed within the framework of WTO. This study aims to identify these challenges and also the opportunities for increasing the export potentiality of Nepalese tea. Moreover, the study offers insights that will help tea producers, decision-makers, and stakeholders to identify any areas that may need further intervention for sustainable production and growth.

2. Literature Review

Coming up of tea in Nepal can be traced back to the late 19th century. Colonel Gajaraj Singh Thapa, son-in-law of Junga Bahadur Rana the de facto ruler of Nepal, planted tea seeds gifted by Chinese emperor in the hills of Ilam for the first time in 1873 which marked the inception of tea farming in Nepal (Driem, 2019). It was only after the establishment of Budhakaran Tea Estate in Jhapa, at private level in 1959 and Nepal Tea Development Corporation (NTDC), at government level in 1966, the expansion of tea gardens and estates gained a momentum. The subsequent installation of first tea factory in Ilam by NTDC during 1978, marked a significant step in the modernization and commercialization of tea production in Nepal (NTCDB, 2023).

Eventually, recognizing the importance of the tea industry and its potential for economic growth, Government of Nepal declared Jhapa, Ilam, Panchthar, Dhankuta and

Terathum as “Tea Zones” in 1982 (NTCDB, 2023b). To further promote and support tea cultivation, the government implemented an Out Growers Scheme, which encouraged small holders in tea farming initiatives within these zones (NTCDB, 1994). As the Government of Nepal adopted a policy of privatizing public enterprises during 1990s, the NTDC was eventually privatized in 2000 AD. Currently, the sector is overseen by National Tea and Coffee Development Board (NTCDB), established in 1991 and mandated for formulating and implementing policies on production, processing and market management (NTCDB, 2023b).

Currently, tea is extended to 20,237 ha of land area, producing 26,380 kg of made tea in fiscal year 2021/22 (NTCDB, 2023a). Nepal exported around 16,594,913 kg of tea worth NRs 3.9 billion in the same year at an average price of 237.26 NRs/kg (DoC, 2023). In order to receive higher prices, Nepalese tea producers must diversify markets beyond India. Although India is Nepal's main export destination, there is a huge potentiality to expand the market in Europe and beyond (Mishra et al., 2020).

The WTO has a significant impact on the tea industry, particularly for growing economies like Nepal. The tea sector has seen significant changes as a result of the WTO membership, including the liberalization of trade policy and the removal of trade barriers (Bhaumik et al., 2005). In another study, Bhaumik and Chakraborty (2010) examined how the agreement influenced the Indian tea industry and found that the liberalization of trade has enhanced competition and encouraged the deployment of new technologies. The study made note of the fact that certain effects of the agreement had been limited by domestic laws and regulations.

Particularly, the agricultural sector has seen significant changes as a result of the Agreement on Agriculture (AoA) under the framework of WTO, which includes the removal of trade restrictions and an increase in producers' competitiveness (Anderson & Martin, 2005). Boccanfuso and Savard (2008) found that the AoA boosted agricultural trade, particularly in

developing countries. By reducing trade barriers and increasing trade policy transparency, the WTO agreement has enhanced trade performance as it improved market access for developing countries and increased trade volumes (Baldwin and Evenett, 2015).

The impact of the WTO on Nepalese tea industry remains a relatively unexplored area of study. Nevertheless, there is a growing anticipation that the country's accession to the WTO has brought significant transformations within the sector. On one hand, the WTO's trade liberalization rules have created new export opportunities for domestic producers. On the other hand, it has resulted to more competition from foreign tea companies. As a result, the domestic tea market is no longer solely influenced by local dynamics but is also shaped by the global forces (Thapa, 2004).

3. Research Methodology

3.1 Selection of Study Area

This study was conducted in Jhapa and Ilam districts of Koshi Province as they are the major tea producing districts of Nepal. Ilam is renowned for producing premium orthodox tea, while Jhapa is the only region in Nepal to produce CTC tea. By including both CTC and orthodox tea trade, this research aimed to provide a comprehensive overview of Nepal's tea sector, encompassing the major tea types traded globally.

3.2 Sources of Information

This study employed both primary and secondary data.

3.2.1 Primary data

Primary data was collected through structured interviews with key stakeholders in the Nepalese tea sector. Specifically, interview was conducted with 10 tea processing centres in Jhapa and Ilam (5 in each). The selection of processing centres considered the production capacities, ensuring representation from large, medium and small-scale facilities. This

approach aimed to capture a comprehensive overview of the sector, as the diverse processing capacities often translate into unique perspectives on trade dynamics.

3.2.2 Secondary data

Moreover, secondary data was obtained from the trade portals and database of WTO, World Bank, ITC, FAO, Department of Customs, NTCDB and other organizations that are available at the public domains.

3.3 Method of Data Analysis

3.3.1 Qualitative Analysis

This involves analysing the provisions of the WTO agreement and other pertinent trade regulations that affects the global trade of tea. It includes identifying key themes and patterns in the narratives gathered, such as shifts in production, marketing, trade practices, impacts on the competitiveness, the role of government policies in the sector's growth, and challenges the industry is currently facing in the context of WTO membership.

3.3.2 Quantitative Analysis

3.3.2.1 Descriptive Analysis

Descriptive statistics, including mean, standard deviation, and frequency distributions was computed to offer a summary of the quantitative data and characterize key variables related to the sector.

3.3.2.2 Comparative Analysis

Secondary data on tea trade, area and production was collected and compared into two sub-periods: before WTO membership and after WTO membership, to find trends and changes in the sector.

3.3.2.3 Competitive Analysis

Competitive analysis offered insightful information on the tea sector's ability to compete in global markets. The research used following tools to assess the competitiveness of the sector:

i. Nominal Protection Coefficient

The Nominal Protection Coefficient (NPC) measures the degree of support or protection given to a particular industry, through trade policy and tariffs. It represents the percentage difference between a good's domestic and global prices while accounting for any applicable tariffs and taxes. In our case, it was estimated as the ratio of the Domestic Price (PD) to the International Price (PR) of tea, adjusted for all transfer costs such as freight, insurance, handling costs, margins, losses, etc., and can be expressed by following equation:

$$NPC = \frac{PD}{PR} \dots\dots\dots Equation (1)$$

Analysis criteria:

If NPC is less than one, then the commodity is competitive which implies that Nepalese tea is worth exporting. On the other hand, NPC greater than one will indicate that it is not competitive.

ii. Domestic Resource Cost ratio

The Domestic Resource Cost (DRC) is a useful indicator for assessing how domestic resources are used in the industries. In order to determine the influence on the competitiveness of the Nepalese tea industry, this analysis examined the amount to which domestic resources are utilised compared to that of the imported foreign resources in the production of tea. Method used by FAO (2009) was replicated in this analysis and can be expressed as follows:

$$DRC = Cost\ of\ Domestic\ Resources / (Price - Cost\ of\ Foreign\ Resources) \dots\dots\dots Equation (2)$$

Analysis criteria:

Domestic production is considered effective and globally competitive when the DRC ratio is less than one since the opportunity cost of the domestic resource that is expended is lower than the net foreign exchange gained through exports or conserved by avoiding imports.

4. Results

During the fourth WTO Ministerial in Cancun, Mexico, Nepal received an offer to join the WTO in September 2003 after more than a decade of negotiation. After Nepalese parliament ratified the membership, it became the 147th member of the WTO on April 23, 2004 (Sharma and Karkee, 2004). This historic accomplishment was the result of a long process that began on May 16, 1989, when Nepal submitted its first application for membership in the GATT - the predecessor of WTO (Adhikari et al., 2008). Nepal's accession of the WTO marked a significant turning point in the country's economic history, affecting multiple sectors. Following this substantial global integration, the tea industry found itself navigating both opportunities and challenges which are briefly described in the subsequent sections.

4.1 Opportunities and challenges for Nepalese tea sector amid WTO membership

4.1.1 Opportunities

WTO membership has opened up a plethora of opportunities. Firstly, a more efficient export procedure has been made possible by the removal of trade barriers and the adherence to the international trade standards. Nepalese tea exports have increased dramatically as a result of this streamlined process, with notable increases in export volume and value. Error! Reference source not found. highlights a notable increase in export numbers, demonstrating the effect of WTO membership on the development trajectory of the tea sector in Nepal. (See **Appendix 1** for detail trade statistics).

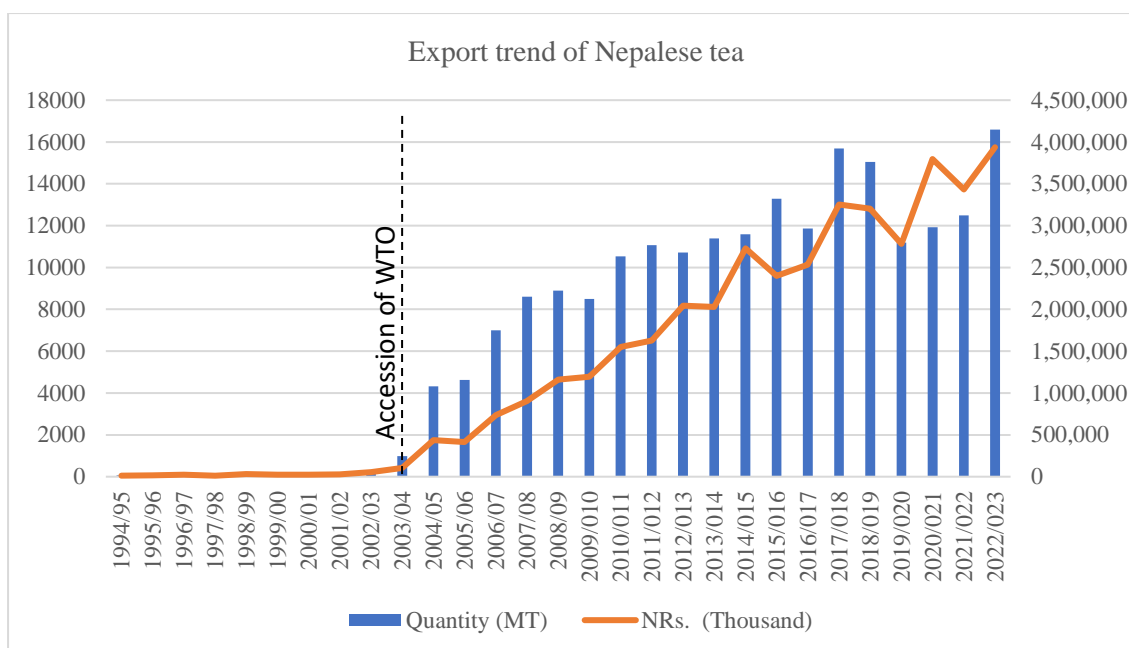


Figure 1 Timeseries data on tea exports from Nepal.

Source: Author's compilation from "Nepal Overseas trade statistics" over years.

The increase in tea exports from Nepal can be attributed to its membership in the WTO, notably seen in the fiscal year 2003/04 when it joined WTO. The export volume in 2003/04 was merely 884 MT which increased to an unprecedented 4316 MT next year, signalling a substantial increase and marking the beginning of a positive trend. The export volume and value reached significantly as this growth trajectory persisted over time. For instance, Nepal exported 16,595 metric tons of tea worth NPR 3.94 billion in 2022/23, demonstrating the sustained and transformative impact of WTO membership on the nation's tea sector.

Additionally, diversifying export destinations and exploring new markets are made possible by the enhanced market access that comes with WTO membership. Similarly, growth in export volumes in almost all destination markets were observed after Nepal joined WTO. For instance, until 2003/04, it used to export tea to only 20 countries while in 2021/22, the number of countries importing Nepalese tea increased to 39. Despite a decrease in tea exports to Germany and Pakistan, Nepal's overall global market presence has expanded- especially in

India, reflecting the positive influence of WTO membership on the country's tea export (**Figure 2**). (See **Appendix 2** for details).

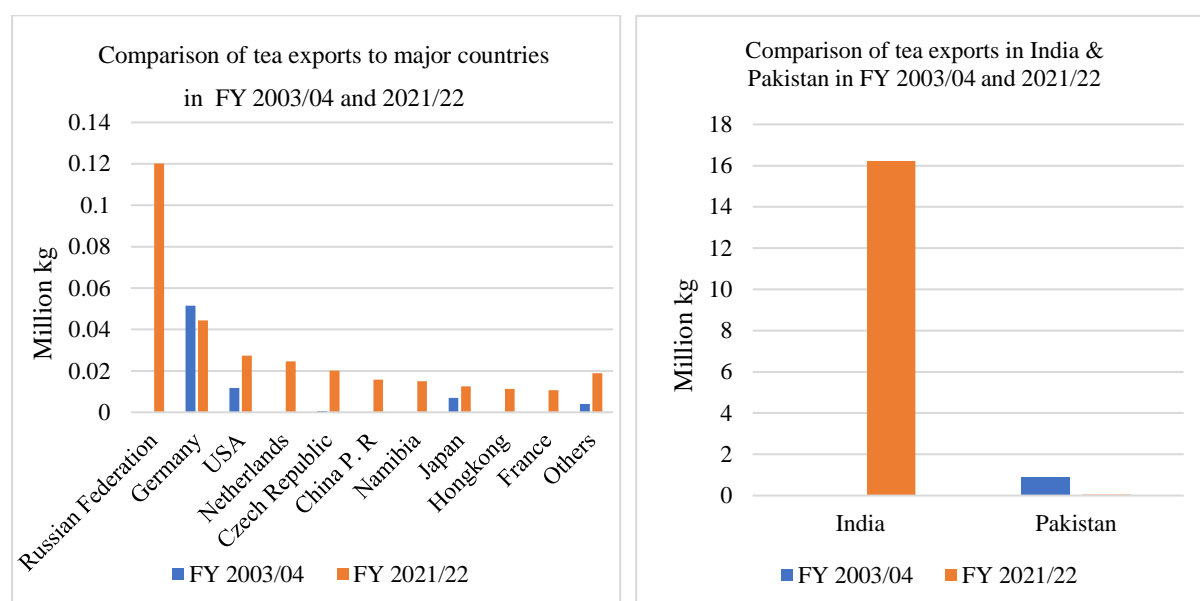


Figure 2 Comparison of tea exports in major countries in FY 2003/04 and 2021/22

Source: Author's compilation from various issues of Nepal Overseas Trade Statistics (TEPC)

Nepalese tea producers are taking advantage of this favourable trading environment to increase its global presence and increased the potential for long-term prosperity while also lowering reliance on specific markets.

4.1.2 Challenges

Despite the impressive surge in tea exports after Nepal's accession to the WTO, the growth rate of tea plantation area tells a different story (**Figure 3**).

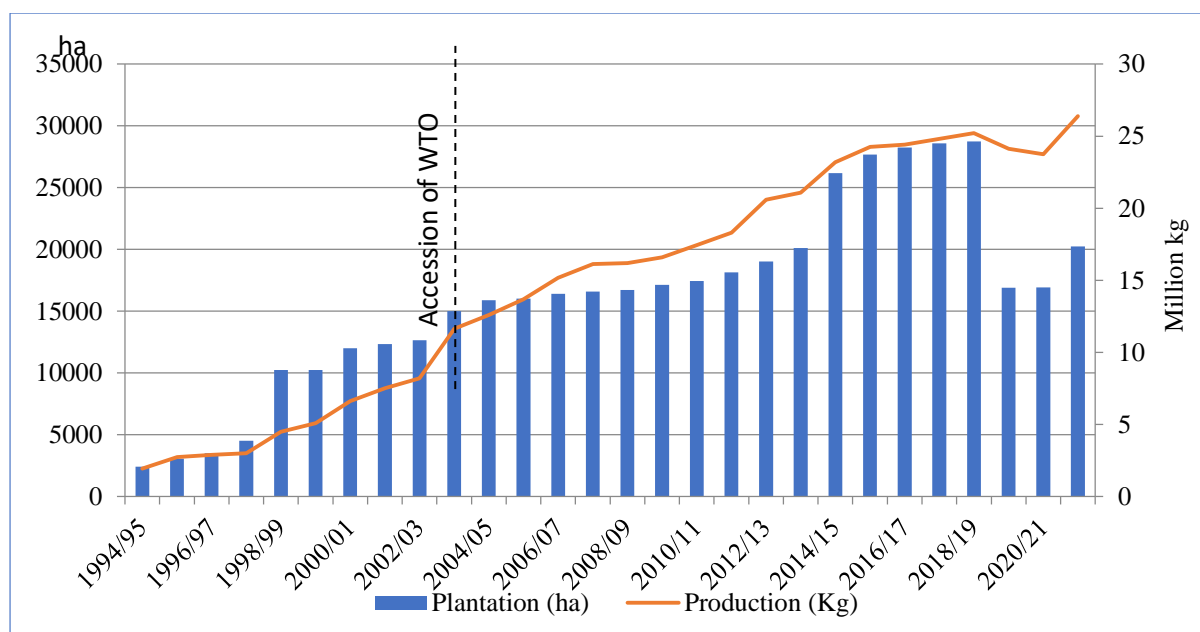


Figure 3 Comparison of growth rate of tea plantation and production in pre and post WTO scenario.

Source: Author's compilation from the secondary data of NTCDB (2023).

In the pre-WTO period, the tea plantation area experienced a robust growth rate of approximately 9.86% per year (

Table 1). However, in the post-WTO scenario (i.e. 2003/04 onwards), the growth rate for tea plantation area slowed down considerably to around 2.37% per year. Similarly, with respect to tea production, the sector experienced growth of 40.35% per year before the WTO membership, while the figures decreased to 7.29% per year after Nepal joined WTO. Given the remarkable improvement in tea exports after WTO accession, this seemingly contradictory trend can be attributed to various factors which needs further explorations.

Table 1 Average annual growth rate of tea plantation area and production

	Average annual growth Rate in	
	Pre-WTO era (Before FY 2003/04)	Post-WTO era (After FY 2003/04)
Tea plantation area	9.86%	2.37%
Tea production	40.25%	7.29%

Source: Author's calculation based on the plantation and production data of NTCDB

(See **Appendix 3** for details on the timeseries data on tea plantation and production.)

A survey was carried out amongst ten tea processing units with the aim of assessing the production challenges in the context of the WTO (**Figure 4**). The perceived challenges of these problems were measured using the severity index, where problems with a severity index of 1 were considered to be the most challenging and that of 5 denotes least challenging. The survey outcome indicated that inadequate government support was perceived as the most challenging problem as reported by 80% of the respondents. It was followed by labour shortage and high cost of inputs like coal and firewood which was perceived by 50% of the respondents.

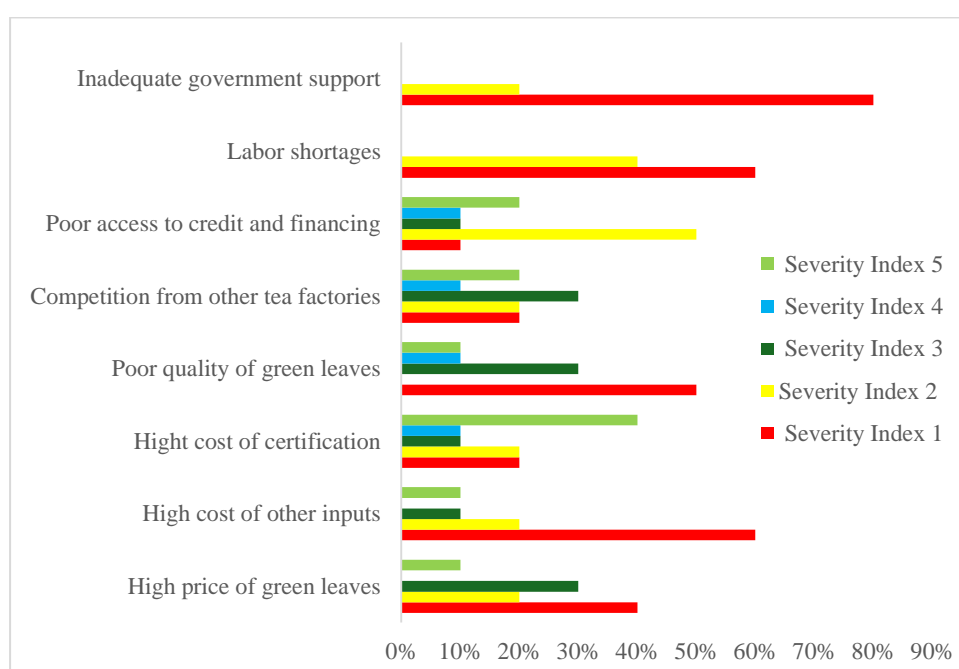


Figure 4 Perception on severity of production challenges of tea producers.

Source: Field Survey (2024)

Although some of the respondents reported that they had received 5% export incentives in previous years, most of the respondents stated that they have received no domestic support from the government. The “Green Box” support of government in Nepalese agriculture amounted to less than 1% of the value of farm products (WTO, 2018). Therefore, there’s a lot of room to increase the domestic support in the tea sector in the form of targeted policies and incentives. Raising domestic support mechanisms can foster a more conducive environment

for tea producers, addressing key challenges such as high production costs and limited access to credit.

4.2 Trade measures and market access barriers to tea trade

The research examined the trade measures and market access barriers that affects the Nepalese tea's export potential on the international market. Understanding the legal and regulatory frameworks controlling global trade, examining tariff and non-tariff barriers imposed by major importing nations are important areas of concentration. By extensively examining the existing literature, trade policies, and agreements, the study endeavours to identify the particular challenges impeding the export potentiality of Nepalese tea. This includes analysing factors like import tariff and non-tariff measures.

4.2.1 Tariff measures

The average tariff rates applied to the imports of tea vary considerably between nations, which affects Nepalese tea's ability to compete on global markets (**Table 2**). India stands out among the main importing countries with an apparent high average tariff rate of 133.1%. It's important to note that the Free Trade Agreement (FTA) governs tea exports from Nepal to India which implies that Nepalese tea can enter India duty-free. Nepalese tea exporters benefit greatly from this FTA clause, which allows them to enter the Indian market without having to pay tariffs.

In contrast, nations such as Pakistan impose an average tariff of 108.3% on tea imports, which presents difficulties for Nepalese exporters trying to enter these markets. Similarly, other countries with relatively high tariff rates, such as Namibia (65.4%) and Russia (19.8%), China (14.9%) and Japan (13.7%) present barriers to entry for Nepalese tea producers.

With average tariff rates of 5.9%, the USA and the EU continue to offer comparatively favourable trade conditions for tea imports. As a least developed country (LDC), Nepal enjoys duty-free access to these markets. However, Nepalese tea exporters are facing challenges to

enter these markets due to non-tariff barriers like strict quality standards and complex regulatory procedures.

Table 2 Tariff rates imposed in tea imports by Nepal and major importing countries.

Country	Average duty	Duty-free in %	Maximum duty
Nepal	40.8	0	50
India	133.1	0	150
Pakistan	108.3	0	150
Russia	19.8	0	20
United States of America	5.9	27.1	14
China	14.9	0	32
Namibia	65.4	20	170
Japan	13.7	22.2	133
European Union	5.9	27.1	15

Source: World Tariff Profiles, 2023

https://www.wto.org/english/res_e/booksp_e/world_tariff_profiles23_e.pdf

Furthermore, Nepal will no more be eligible for duty-free entry as it prepares to graduate from LDC category by 2026. This impending change underscores the urgency for Nepal to enhance the competitiveness of its tea industry to navigate future trade dynamics effectively.

4.2.2 Non- Tariff measures

Despite comparatively favourable tariff rates in some markets like the USA and EU, Nepalese tea exports face substantial obstacles due to non-tariff barriers. The importing nations impose certification requirements, phytosanitary restrictions, and strict quality and safety standards. The Sanitary and Phytosanitary (SPS) measures agreement and the Technical Barrier to Trade (TBT) agreement provide framework to ensure that such regulations are necessary for the protection of human, animal, or plant life or health, without unjustifiably restricting trade.

While SPS measures are largely concerned with protecting human, animal, and plant health, the TBT measures relates to the technical regulations, standards and conformity assessment processes and extends beyond the trade of agricultural commodities. Adherence to technical regulations on labelling, packaging, and product specifications are outlined in the

TBT Agreement and covers non-food products like electronics, automobiles and other consumer products as well.

Compliance with SPS and TBT measures is essential for exporting tea to international markets. However, the diverse and evolving nature of these standards across different markets complicates the export process for Nepalese tea producers. As the consumers in developed countries demand more and more certification schemes, such fair trade and organic certificates, Nepalese tea producers need to invest in expensive and time-consuming compliance procedures.

While the study didn't find any processing unit certified by a quality management program in Jhapa, 4 out of 5 units in Ilam were certified organic. Because of the absence of internationally accredited local certifying body in Nepal, all the expenses related to external inspection, audit and certification is paid to third party certification agencies operating abroad. The survey found that it puts an extra burden of around Rs10.33 per kg on the total cost of production. Moreover, 3 out of 5 respondents of Ilam perceived the certification as a burden imposed by the buyers. Although almost all the certified processing units reported that there has been increase in the price of tea after adopting the certification scheme, they responded that the hike wasn't sufficient to cover the expenses associated with the certification.

Furthermore, India is the major trading partner of Nepalese tea which imported 97.80% of the total volume of tea exported by Nepal in fiscal year 2021/23 (DoC, 2023). Almost all respondents expressed concerns about the non-tariff barriers put up by Indian authorities. The tea from Nepal origin needs to be tested at Central Food Laboratory (CFL) in Kolkata to receive custom clearance. Nepalese tea exporters find it more difficult to efficiently compete in the Indian market as a result of extra expenses and delays associated with this process. Non-tariff restrictions of this kind impair not just market accessibility but also the competitiveness and expansion potential of tea exports from Nepal.

4.3 Competitive analysis

A comparative analysis was carried out, concentrating on both CTC and Orthodox tea manufacturing, in order to evaluate the competitiveness of Nepalese tea in the international market. Important metrics that provide important information about the economics of the tea industry were used in the analysis, including the Nominal Protection Coefficient (NPC) and Domestic Resource Cost (DRC).

4.3.1 Nominal Protection Coefficient

The NPC is an essential indicator that sheds light on their competitiveness in the international market by assessing the degree of protection provided to domestic producers. NPC analysis was performed on both CTC and Orthodox tea in the context of pre- and post-WTO periods (See Appendix 4). For the purpose of this analysis, the price of CTC tea was derived from the Indian exports, given that India is the major market for this tea type of Nepal. Similarly, the price of Orthodox tea was estimated based on the average export price in Germany, a significant market segment for Nepalese Orthodox tea.

Summary of the estimates is presented in **Table 3**. With an NPC of 1.22 in the pre-WTO era, CTC tea demonstrated a less competitive position in global markets. Nonetheless, there was a discernible improvement following WTO membership, as evidenced by a decreased NPC of 1.15. Although still above 1, the decrease suggests enhanced competitiveness.

On the other hand, Orthodox tea was already competitive in the pre-WTO scenario with an NPC of 0.86. It saw a substantial improvement in the post-WTO period, reaching an NPC of 0.67 and indicates that unlike CTC tea, the Nepalese orthodox tea is competitive in the global market despite less support received from the government. The outcomes highlight how Nepal's WTO membership has improved its tea industry's competitiveness in the global market adhering to the principles of WTO in freer trade and reduced domestic support as provisioned by WTO rules.

Table 3 NPC of CTC and Orthodox tea in pre and post WTO scenario

	Nominal Protection Coefficient (NPC)	
	Pre-WTO	Post-WTO
CTC tea	1.22	1.15
Orthodox tea	0.86	0.67

Source: Author's calculation based on Field survey (2024) and secondary data of TEPC

(See **Appendix 4** for details).

4.3.2 Domestic Resource Cost ratio

Analysis of DRC ratio measures how well a nation uses its own resources to produce particular items. In this study, cost incurred in sourcing green leaves, labour, firewood, electricity, transportation, staff salary, communication, maintenance of machineries, bank interest, insurance, audit and other costs were considered as the domestic resource cost. Similarly, coal, petroleum, packaging materials, machineries were the inputs that were imported for the production of tea. Moreover, the third-party certification is also done by foreign certifying body. Thus, costs associated with these resources were considered foreign resources cost in this study.

Table 4 summarizes the costs associated with domestic and foreign resources obtained from the survey data. The cost of production of CTC and orthodox tea was 160.93 and 440.79 Rs/kg respectively of which the cost of domestic resources was estimated as 139.68 Rs/kg and 406.07 Rs/kg. With an average price of 183.44Rs/kg and 540 Rs/kg, the DRC ratio of CTC and orthodox tea was computed to be 0.86 and 0.80 respectively. Since the DRC ratio is less than 1, this indicates that Nepal is using domestic resources efficiently in the sense that the opportunity cost of producing tea is less than the domestic value-addition generated by the production process. In other words, Nepal has comparative advantage in producing both types of tea.

Table 4 DRC analysis of CTC and orthodox tea of Nepal.

	Particulars	CTC	Orthodox
A	Cost of Domestic Resources (Rs/kg)		
1	Green Leaf	87.39 (54.3)	307.08 (69.7)
2	Labor	17.55 (10.9)	29.65 (6.7)
3	Firewood	2.05 (1.3)	3.71 (0.8)
4	Electricity	8.87 (5.5)	8.52 (1.9)
5	Transportation	0.30 (0.2)	6.06 (1.4)
6	Staff salary	4.69 (2.9)	30.77 (7.0)
7	Communication	0.42 (0.3)	0.45 (0.1)
8	Maintenance	2.32 (1.4)	3.54 (0.8)
9	Bank Interest	8.63 (5.4)	7.86 (1.8)
10	Insurance	0.70 (0.4)	4.27 (1.0)
11	Audit	0.06 (0.0)	0.24 (0.1)
12	Other costs	6.71 (4.2)	3.91 (0.9)
	<i>Sub total (C_d)</i>	<i>139.68 (86.8)</i>	<i>406.07 (92.1)</i>
B	Cost of Foreign Resources (Rs/kg)		
1	Coal	13.50 (8.4)	9.70 (2.2)
2	Petroleum	2.74 (1.7)	6.81 (1.5)
3	Packaging material	3.30 (2.1)	6.57 (1.5)
4	Certification cost	0.00 (0.0)	10.33 (2.3)
5	Depreciation of machineries	1.70 (1.1)	1.30 (0.3)
	<i>Sub total (C_f)</i>	<i>21.24 (13.2)</i>	<i>34.72 (7.9)</i>
	Total Cost of Production (Rs/kg)	160.93 (100)	440.79 (100)
	Average price (P)	183.44	540
	DRC = C_d / (P-C_f)	0.86	0.80

Figures in parenthesis indicate percentage of total cost of production.

Source: Author's calculation based on Field survey data

5. Summary, Discussions and Implications

5.1 Summary of findings

To sum up, this comprehensive analysis examined the various facets of Nepal's tea sector within the framework of its membership with the WTO. The study unveiled the challenges and opportunities presented by the WTO agreement, illuminating the complex relationships impacting the industry's expansion and global competitiveness. The export data demonstrated a significant increase following Nepal's WTO accession, underscoring the positive impact of membership on Nepal's tea trade. But this increase was offset by a sluggish growth in plantations and production.

The research also examined the trade measures and market access barriers that affects the export of Nepalese tea. India stands out among the main importing countries where the FTA grants duty-free access to Nepalese tea. Other countries like Pakistan, Russia, China and Japan with higher tariff rates present barriers to entry for Nepalese tea producers. Although USA and EU have relatively lower tariff rates, Nepalese exporters faces difficulties in meeting the requirements of SPS and TBT measures. Because of the absence of internationally accredited local certifying body in Nepal, all the expenses associated with certification is paid to foreign certification agencies, which adds up extra to the cost of production. Furthermore, Nepalese exporters expressed concerns about the requirement of having their samples tested at the Central Food Laboratory (CFL) in Kolkata to receive custom clearance which comes with extra expense and delays associated with the process.

The competitive analysis using Nominal Protection Coefficient (NPC) and Domestic Resource Cost (DRC) illuminated the cost dynamics of CTC and Orthodox teas. While the findings revealed a cost-competitive edge in the export market for Orthodox tea, the export market presented challenges in case of CTC due to over-dependence in India. The DRC ratio analysis provides strong evidence that Nepal has comparative advantage in producing both types of tea.

Amidst the successes, challenges like limited domestic support, quality standards, and infrastructure gaps emerged as the major obstacle for the growth of the sector. In response, a set of strategic policy recommendations was outlined. This encompassed trade facilitation, quality standards, infrastructure development, increasing domestic support, research and development, capacity building, and sustainability initiatives.

In conclusion, the WTO framework requires a delicate balance between leveraging export opportunities and strengthening the domestic market. The policy recommendations outlined herein serve as a roadmap for steering Nepal's tea industry towards sustained

prosperity in a dynamic and competitive international trade. The findings of this study contribute not only to academic discourse but also provide actionable insights for policymakers, industry stakeholders, and the broader community invested in the flourishing future of Nepal's tea sector.

5.2 Discussion

A comprehensive analysis of the challenges and opportunities in the context of WTO membership was conducted in an effort of enhancing Nepal's tea sector and ensuring its sustainable growth within the framework of the WTO. Recognizing the significance of the tea sector in Nepal's economy, it is essential to ensure that trade practices adhere to international norms. This study explored the subtleties of WTO regulations and how they affect tea industries in Nepal. The ultimate objective is to make workable policy suggestions that comply with WTO regulations, promoting a robust and internationally competitive environment for the Nepalese tea sector.

The main policy recommendations that came from this thorough investigation are summarized as follows:

- i. Trade facilitation:** Realizing that Nepalese tea has become too dependent on the Indian market, Nepal needs to look into and take advantage of other markets that have more potentiality, such as Bangladesh, China, and Pakistan. Prospects for expanding market presence can be created by putting focused trade promotion programs into action, attending international trade shows, and cultivating diplomatic ties. A formal framework for trade facilitation can be established by formulating bilateral agreements with these tea-importing nations. Nepalese tea can become more competitive in a variety of areas by negotiating favourable terms and lowering tariff and other trade barriers.
- ii. Branding and quality assurance:** Market visibility and appeal of Nepalese tea can be greatly increased by developing a unified and distinctive brand identity, similar to that of

Darjeeling Tea. This initiative involves collaboration among tea producers, government agencies, and industry stakeholders to develop a shared brand that captures the unique characteristics and quality of Nepalese tea. It should be linked with a set of quality standards. Establishing quality assurance mechanisms is paramount to uphold the integrity of the Nepal Tea brand. This involves implementing a robust certification process that verifies adherence to the quality standards.

iii. Infrastructure development: Investing in the modernization of tea processing facilities is essential to enhance efficiency, product quality, and overall productivity. Upgrading machinery, adopting advanced processing technologies, and implementing best practices will contribute to the production of high-quality teas that meet international standards. Similarly, improving transportation infrastructure, including roads and ports, can streamline the supply chain, reduce transit times, and lower transportation costs. Efficient logistics will enable tea producers to meet market demands promptly.

iv. Domestic support measures: Nepal's current level of domestic support for the tea industry falls below the permissible limits outlined by the WTO. Improving domestic support measures is essential to guarantee adherence to WTO requirements and promote the sustainability of the tea businesses. The tea producers should be offered subsidies or financial incentives for scaling up their production, maintaining quality and obtaining quality certifications. Facilitating access to low-interest loans for tea producers can alleviate financial constraints and support investments in modernization, technology adoption, and infrastructure development.

v. Investment in Research and Development: In order to promote innovation and improve the global competitiveness of Nepalese tea, more investment should be made in research and development (R&D). Allocating resources to R&D initiatives will facilitate the development of new tea varieties, cultivation techniques, and processing methods. This

strategic move can result in improved tea quality, increased yields, and a diversified product range, making Nepalese tea more appealing to international markets.

vi. Capacity building programs: To strengthen the capabilities of smallholder tea farmers, the implementation of comprehensive capacity-building programs is imperative. These programs should also target processors, and exporters, providing them with essential skills and knowledge to adapt to evolving market dynamics. Workshops, training sessions, and skill development programs can cover areas such as sustainable farming practices, quality control measures, and market-oriented strategies. By enhancing the skills and knowledge base of individuals within the tea supply chain, Nepal can ensure a more resilient and competitive industry. Collaborations with academic institutions, industry experts, and international organizations can contribute to the success of these capacity-building initiatives, fostering a robust and skilled workforce for the sustainable growth of the tea sector.

vii. Sustainability Initiatives: Incorporating sustainability measures is crucial for the long-term viability of Nepalese tea industry. The government, in collaboration with industry stakeholders, should lead initiatives promoting environmentally friendly practices. This includes encouraging organic farming, reducing the use of agrochemicals, and implementing eco-friendly processing methods. Certification programs for sustainable and ethical practices, such as Rainforest Alliance or Fair Trade, can enhance the marketability of Nepalese tea on the global stage. These initiatives not only align with international expectations but also position Nepalese tea as a responsible and attractive choice in the global market.

5.3 Practical Implications

The implications of this study are briefly explained as follows:

- i. **Formulation of Policy:** The study offers Nepalese policymakers an insightful information that emphasizes the necessity of specific policies for enhancing the sustainability and competitiveness of the country's tea industry. By understanding the impact of WTO agreements on tea trade and market access barriers, policymakers can formulate targeted policies to enhance the competitiveness of Nepalese tea in global markets.
- ii. **Market Diversification:** The report emphasizes the significance of expanding the export market of Nepalese tea by highlighting important trade policies and barriers to market entry. By extending the market access beyond established markets like India and into other potential markets like China, Bangladesh and Pakistan, Nepalese tea producers can reduce the risk associated with being overly dependent on a single market and seize new opportunities for growth.
- iii. **Sustainable Practices:** The long-term viability of the Nepalese tea business depends on sustainable initiatives like organic practices, environmentally friendly processing techniques and certification systems for ethical practices. Incorporating sustainability measures into operations not only conforms to international standards, but also improves Nepalese tea's marketability as an ethical and responsible choice in the global market.
- iv. **Graduation from the LDC Status:** Since Nepal is scheduled to graduate from the LDC category by 2026, the report emphasizes the urgent need of Nepal to boost the competitiveness of its tea sector. It has to concentrate on increasing the productivity, quality and marketability of its tea exports, as it will no longer have duty-free access to developed countries.

5.4 Conclusion

In conclusion, this study provides important insights into the opportunities and challenges faced by Nepalese tea producers in the international market within the context of WTO membership. The report highlights how the tea exports have increased significantly as a

result of WTO membership with increased market access. Despite these encouraging developments, the study also reveals some issues that pose a threat to the long-term viability and competitiveness of the tea industry. These issues include slow expansion in the area, production and domestic support for tea plantations.

In order to overcome these challenges, a comprehensive strategy including policy interventions, market diversification strategies and sustainable programs is needed to create a favourable environment for the growth of the sector. To ensure that Nepal's tea sector remains resilient, competitive and sustainable in the post-WTO era, policymakers, industry stakeholders and development partners can implement the policy recommendations outlined in this study.

6. References

- Adhikari, R., Dahal, N. and Pradhanang M. (2008). *Ensuring Development-Supportive Accession of the Least Developed Countries to the WTO: Learning from Nepal - Research Report*. Trade Knowledge Network, Winnipeg: International Institute for Sustainable Development.
- Anderson, K., & Martin, W. (2005). *Agricultural trade reform and the Doha development agenda*. World Bank Policy Research Working Paper, (3607).
- Baldwin, R., & Evenett, S. J. (2015). Value creation and trade in 21st century manufacturing. *Journal of Industry, Competition and Trade*, 15(3), 237-254. doi:10.1007/s10842-015-0186-9
- Bhaumik, S. K., Majumder, A. D., & Basu, A. (2005). *Globalization and tea industry in India*. *Economic and Political Weekly*, 40(9), 833-840.
- Bhaumik, S. K., & Chakraborty, D. (2010). Impact of liberalization on Indian tea industry. *Indian Journal of Agricultural Economics*, 65(3), 428-439.
- Birovljev, J., & Ćetković, B. (2013). *The Impact of the WTO Agreement on Agriculture and Food Security in Developing Countries*. 135 EAAE Seminar Challenges for the Global Agricultural Trade Regime after Doha.
- Boccanfuso, D., & Savard, L. (2008). The impact of trade liberalization on the global economy. *Canadian Journal of Agricultural Economics/ Revue Canadienne d' agroéconomie*, 56(4),
- DoC. (2020). *Customs Bulletin (Nov2019- July 2020)*. Department of Customs, Tripureswar, Kathmandu.
- DoC. (2023). *Foreign Trade Statistics FY 2021/22*. Department of Customs, Tripureswar, Kathmandu. Retrieved from <https://www.customs.gov.np/page/fts-fy-207980>

- Driem, G. L. van. (2019). *The Tale of Tea: A comprehensive history of tea from prehistoric times to the present day*. Koninklijke Brill NV, Leiden, The Netherlands.
- FAO. (2009). Assessment of comparative advantage in aquaculture: framework and application on selected species in developing countries. *FAO Fisheries and Aquaculture Technical Paper. No. 528*. Rome, FAO, 5-6.
- MoAD. (2015). *Agriculture Development Strategy, 2015-2035*. Ministry of Agricultural Development, Singhadarbar, Kathmandu, Nepal.
- MoC. (2016). *Nepal Trade Integration Strategy, 2016*. Ministry of Commerce, Singhadarbar, Kathmandu, Nepal.
- Mishra, P., Kattel, R. R, Dhakal, S.C., & Bhandari, P. L. (2020). Orthodox Tea: Value Chain Analysis from the Perspective of Certification in Ilam District of Nepal. *Food & Agribusiness Management, 1*(2), 63-67.
- NTCDB. (1994). *Tea A Tea*. National Tea and Coffee Development Board, Kathmandu, Nepal. Vol.2, Year 1. Retrieved from <https://teacoffee.gov.np/public/images/pdf-21545382012.pdf>
- NTCDB. (2023a). *Tea Statistics for fiscal year 2021/22*. National Tea and Coffee Development Board, Kathmandu, Nepal. Retrieved from <https://teacoffee.gov.np/statistics>
- NTCDB. (2023b). *Nepal Tea History*. National Tea and Coffee Development Board, Kathmandu, Nepal. Retrieved from <https://teacoffee.gov.np/teainfo/teahistory>
- Prasain, K. (2022). *For Nepal's Troubled Tea Industry, India's Import Barriers Could Be a Death Knell*. The Wire. Retrieved from <https://thewire.in/trade/india-nepal-tea-import-barrier>.
- Sharma, R.P., & Karkee, M. K. (2004). Introduction and Overview. In: *Implications of the WTO Membership on the Nepalese Agriculture*. FAO/UNDP, Kathmandu, Nepal.

Thapa, Y.B. (2004). Commodity Case Study - Tea. In: *Implications of the WTO Membership on The Nepalese Agriculture: Introduction and Overview*. FAO/UNDP, Kathmandu, Nepal.

WTO. (2018). *Trade Policy Review-Nepal*. WT/TPR/S/381. WTO secretariat, Geneva.

WTO. (2023). *Understanding the WTO: The Agreements*. World Trade Organisation.

Retrieved January 5, 2022, from https://www.wto.org/english/thewto_e/whatis_e/tif_e/agrm1_e.htm

Appendices

Appendix 1 Tea Trade in Nepal

Fiscal year		Export		Import	
		Quantity (MT)	NRs. (Thousand)	Quantity (MT)	NRs. (Thousand)
Pre-WTO era	1994/95	72.2	13,574	NA	65,208
	1995/96	72.7	15,516	NA	52,171
	1996/97	81.4	22,617	NA	86,971
	1997/98	35.01	11,745	NA	60,218
	1998/99	83.8	30,081	NA	27,831
	1999/00	81.6	25,722	NA	73,277
	2000/01	69.5	23,084	NA	98,000
	2001/02	79.6	27,987	NA	8,838
	2002/03	193.14	53,907	NA	468
	2003/04	984.18	104823	NA	992
Post WTO era	2004/05	4316	438,771	NA	419
	2005/06	4623	415,632	NA	5,005
	2006/07	7000	734,285	NA	19,000
	2007/08	8600	902,122	NA	13,123
	2008/09	8889	1,160,593	443	9,624
	2009/010	8498	1195319	242	36116
	2010/011	10533	1,549,891	306	40,804
	2011/012	11061	1627589	348	47,801
	2012/013	10709	2,043,220	352	57,516
	2013/014	11396	2,029,439	300	55,770
	2014/015	11,585	2,728,800	375	40,804
	2015/016	13,289	2,400,119	303	67,971
	2016/017	11,867	2,533,885	363	91,651
	2017/018	15,685	3,251,686	371	120,934
	2018/019	15,044	3,203,908	343	117,731
	2019/020	11,185	2,782,841	219	218,629
	2020/021	11,921	3,797,140	347	346,806
	2021/022	12,494	3,434,350	204	83,645
	2022/023	16,595	3,937,266	278	129,179

Source: NTCDB (2023)

**Appendix 2 Comparison in the export of Nepalese tea to destination Countries after the
WTO membership**

Importing Countries	FY 2003/04 [#]		FY 2021/22	
	Quantity (kg)	Exports Value (NRs, thousand)	Quantity (kg)	Exports Value (NRs P-Cf, thousand)
Australia			4,548	20,614
Austria	506	421,595	93	239
Bangladesh	203	71,582		
Belgium			233	199
Canada	457	262,904	3,065	7,956
China P. R	13	4,000	15,719	8,188
Czech Republic	630	298,027	20,047	37,143
Denmark			205	1,182
Estonia			21	42
Finland			72	443
France	73	36,041	10,725	30,341
Germany	51,541	17,618,918	44,341	99,571
Hongkong	30	4,681	11,275	745
Hungary			190	971
India			16,229,546	3,436,882
Italy	87	55,121	1,606	1,733
Japan	6,906	3,511,444	12,511	22,813
Korea R	252	52,340	54	533
Lithuania			800	2,287
Luxembourg	10	6,179		
Malaysia			1,050	559
Namibia			14,976	1,773
Netherlands	63	19,500	24,542	35,255
New Zealand			58	255
Norway			91	1,022
Pakistan	908,974	79,378,256	44,754	8,911
Portugal			244	145
Romania			10	60
Russian Federation			120,159	65,798
Singapore	29	10,772	58	441
Slovakia			154	744
South Africa			8	2
Spain	2,049	134,313	2	1
Sri Lanka			120	619
Sweden			76	852

Switzerland			302	969
Taiwan	63	20,530	5,113	9,236
Thailand	13	4,000		
Ukraine			84	429
U A E	452	172,404	122	549
UK			517	4,184
USA	11,829	2,739,923	27,424	133,582
Total	984,180	104,822,530	16,594,913	3,937,266

Source: Author's calculation based on the data of TEPC

Note: # The year when Nepal received WTO membership

Appendix 3 Tea plantation and production trend in Nepal

Fiscal Year		Plantation (ha)	Production (Kg)
Pre-WTO era	1994/95	2432	1946403
	1995/96	3071	2737329
	1996/97	3501.8	2905942
	1997/98	4515	3018571
	1998/99	10249.6	4492980
	1999/00	10,249	5,085,237
	2000/01	11,997	6,638,082
	2001/02	12,346	7,518,575
	2002/03	12,643	8,198,000
	2003/04	15,012	11,651,204
Post WTO era	2004/05	15,900	12,606,081
	2005/06	16,012	13,688,237
	2006/07	16,420	15,167,743
	2007/08	16,594	16,127,490
	2008/09	16,718	16,208,127
	2009/10	17,127	16,607,555
	2010/11	17,451	17,437,933
	2011/12	18,149	18,309,824
	2012/13	19,036	20,588,145
	2013/14	20,120	21,076,366
	2014/15	26,165	23,186,726
	2015/16	27,688	24,263,744
	2016/17	28,241	24,409,326
	2017/18	28,595	24,803,612
	2018/19	28,732	25,205,885
	2019/20	16,901	24,118,250
	2020/21	16,917	23,745,902
	2021/22	20,237	26,379,493

**Appendix 4 Nominal Protection Coefficient estimation of CTC and Orthodox tea in
different years**

Year		CTC Tea			Orthodox Tea		
		Domestic Price (Rs/kg)	Export Price [#] (Rs/kg)	NPC	Domestic Price (Rs/kg)	Export Price ^{##} (Rs/kg)	NPC
Pre- WTO era	1998/99	73	65	1.12	250	300	0.83
	1999/00	81	75	1.08	251	300	0.84
	2000/01	83	75	1.11	253	300	0.84
	2001/02	97	85	1.14	310	350	0.89
	2002/03	102	75	1.36	317	380	0.83
	2003/04	107	70	1.53	375	400	0.94
	Average	90.50	74.17	1.22	292.67	338.33	0.86
Post - WTO era	2004/05	112	70	1.60	477	400	1.19
	2005/06	115	80	1.44	482	425	1.13
	2006/07	120	90	1.33	491	450	1.09
	2007/08	132	120	1.10	495	500	0.99
	2008/09	145	130	1.12	569	681	0.84
	2009/10	155	111	1.40	572	644	0.89
	2010/11	160	185	0.86	575	720	0.80
	2011/12	162	159	1.02	580	675	0.86
	2012/13	180	176	1.02	599	915	0.65
	2013/14	181	163	1.11	605	1,054	0.57
	2014/15	183	163	1.12	607	1,161	0.52
	2015/16	195	166	1.18	610	1,200	0.51
	2016/17	203	198	1.02	623	1,220	0.51
	2017/18	207	191	1.08	627	1,371	0.46
	2018/19	212	198	1.07	635	1,547	0.41
	2019/20	250	230	1.08	638	1,535	0.42
	2020/21	317	295	1.08	641	1,928	0.33
	2021/22	270	248	1.09	643	1,922	0.33
	2022/23	243	212	1.15	650	2,246	0.29
	Average	186.42	167.61	1.15	585.21	1083.87	0.67

Source: Author's calculation based on survey (2024) and secondary data of TEPC

Note: [#] Average export price with India/Pakistan

^{##} Average export price in Germany.

Appendix 5 Glimpse of the research activities



Tea processing industry operated by cooperatives in Jhapa



Gorkha Tea Estate, Sunderpani, Ilam



Raj Tea Estate, Jhapa



Subha Tea Industry, Jhapa



Himalayan Shangri-la Tea Producers Pvt. Ltd
Ilam



Buttabari Tea Pvt Ltd
Jhapa