



Value Chain Upgrading for Competitiveness and Sustainability:

A Comparative Study of Tea Value Chains in Kenya, Sri Lanka and Nepal

Sarah Mohan



International Centre for Trade
and Sustainable Development

Country Case Study

Value Chain Upgrading for Competitiveness and Sustainability:

A Comparative Study of Tea Value Chains
in Kenya, Sri Lanka and Nepal

Sarah Mohan



Published by

International Centre for Trade and Sustainable Development (ICTSD)
 International Environment House 2
 7 Chemin de Balexert, 1219 Geneva, Switzerland

Tel: +41 22 917 8492
 ictsd@ictsd.ch

Fax: +41 22 917 8093
 www.ictsd.org

Publisher and Chief Executive:
 Managing Director:
 Programme Manager:
 Senior Programme Officer:

Ricardo Meléndez-Ortiz
 Deborah Vorhies
 Judith Fessehaie
 Kiranne Guddoy

Acknowledgements

This paper was produced under ICTSD's Programme on Inclusive Economic Transformation as part of a project focused on global value chains which is aimed at empowering least developed and low income countries to effectively utilise value chains to achieve sustainable and inclusive economic transformation.

The author wishes to thank the ICTSD team involved in the conception and review of this paper as well as several individuals for their assistance in the interviews conducted for this study - notably Rohan Pethiyagoda, Sri Lanka Tea Board; Sheshkanta Gautam, Nepal Tea and Coffee Development Board; Elyse Peterson, Tealet; Susma Bastola, Central Tea Cooperative Federation Nepal; Samuel Ogola, Tea Directorate Kenya; Olivier Marty, International Trade Centre - as well as the hundreds of farmers, representatives of tea firms, industry associations, public agencies, labourers, research assistants and others in Nepal who were kind to answer many questions over the years. Without their time and valuable insights this paper would not have been possible.

ICTSD is grateful for the generous support from its core donors including the UK Department for International Development (DFID); the Swedish International Development Cooperation Agency (SIDA); the Ministry of Foreign Affairs of Denmark (Danida); and the Netherlands Directorate General of Development Cooperation (DGIS).

ICTSD welcomes feedback on this publication. This can be sent to Judith Fessehaie (jfessehaie@ictsd.ch) or Fabrice Lehmann, ICTSD Executive Editor (flehmann@ictsd.ch).

Citation: Mohan, Sarah. 2018. *Value Chain Upgrading for Competitiveness and Sustainability: A Comparative Study of Tea Value Chains in Kenya, Sri Lanka and Nepal*. Geneva: International Centre for Trade and Sustainable Development (ICTSD).

Photo credit: Tea tasting ceremony at NESTPROL (Nepal Small Tea Producers Limited)/Dr. Khola Tea factory, Fikkal, Ilam, Nepal, 3 May 2010.

Copyright © ICTSD, 2018. Readers are encouraged to quote and reproduce this material for educational and non-profit purposes, provided the source is acknowledged. This work is licensed under the Creative Commons Attribution-NonCommercial-NoDerivatives 4.0 International License. To view a copy of this license, visit: <https://creativecommons.org/licenses/by-nc-nd/4.0/>

The views expressed in this publication are those of the authors and do not necessarily reflect the views of ICTSD or the funding institutions.

TABLE OF CONTENTS

LIST OF FIGURES AND TABLES	iv
LIST OF ABBREVIATIONS	v
EXECUTIVE SUMMARY	vi
1. INTRODUCTION	1
2. CONTEXTUALISING TEA GLOBAL VALUE CHAINS AND SUSTAINABLE DEVELOPMENT	3
2.1 Structure of the Tea GVC	3
2.2 Lead Firm Strategies	6
2.3 Production and Consumption Trends	7
2.4 Upgrading Possibilities in the Tea GVC	8
3. MAPPING THE TEA VALUE CHAINS IN KENYA, SRI LANKA, AND NEPAL	11
3.1 End Markets	11
3.2 Upstream Production and Processing	12
3.3 Kenya	14
3.4 Sri Lanka	15
3.5 Nepal	16
4. GOVERNMENT SUPPORT FOR THE TEA GLOBAL VALUE CHAIN	18
4.1 Tea Policies	18
4.2 Governance Organisations	20
4.3 Policy Coherence	21
4.4 Standards	22
5. SDG IMPLICATIONS IN THE TEA VALUE CHAINS	24
5.1 Poverty-Related SDGs (SDG 1, 2, 3, 4, 6, 7)	24
5.2 Gender (SDG 5)	25
5.3 Inclusive Economic Transformation (SDGs 8, 9, 10, 16)	27
5.4 Environment (SDG 12, 13, 15)	29
6. CHALLENGES AND OPPORTUNITIES	30
7. CONCLUDING POLICY RECOMMENDATIONS	32
REFERENCES	36

LIST OF FIGURES AND TABLES

Figure 1: The Conventional Nepal Orthodox Tea Value Chain

Figure 2: UK Consumer Prices and Global Producer Prices for Tea 1986-2014

Table 1: Top Ten Ranked Leading Countries in Tea Production, Export and Consumption (by Thousand Tonnes, 2013)

Table 2: Tea Exports of Kenya, Sri Lanka and Nepal (2016)

Table 3: Production Characteristics of Tea Value Chains in Kenya, Sri Lanka and Nepal (2014-16)

Table 4: Gender roles on small-scale tea farms in Kenya, Sri Lanka and Nepal

Table 5: Five Pathways to Upgrading for Improved Competitiveness and Meeting the SDGs

LIST OF ABBREVIATIONS

ACBF	African Capacity Building Foundation
CTC	crush, tear and curl (method of tea leaf processing)
CTCF	Central Tea Cooperative Federation (Nepal)
EATTA	East Africa Tea Trade Association
FAO	Food and Agriculture Organization (UN)
FFS	Farmer Field School
GLOBALGAP	Global Good Agricultural Practice
GVC	global value chain
GWP	global warming potential
HACCP	Hazard Analysis and Critical Control Point
IDH	Sustainable Trade Initiative
ISO	International Organization for Standardization
ITC	International Trade Centre
KIPPRA	Kenya Institute for Public Policy Research and Analysis
KTDA	Kenyan Tea Development Agency
KTGA	Kenya Tea Growers Association
LDC	least developed country
LIC	low-income country
MNC	multinational corporation
NARC	Nepal Agricultural Research Council
NGO	non-governmental organisation
NTCDB	Nepal Tea and Coffee Development Board
NTPA	Nepal Tea Producers' Association
RA	Rainforest Alliance
SDG	Sustainable Development Goal
TSHDA	Tea Small Holdings Development Authority (Sri Lanka)
TRI	Tea Research Institute (various countries)
VSS	voluntary sustainability standard

EXECUTIVE SUMMARY

Developing countries have long exported agricultural commodities in the hopes of bringing the benefits of globalisation to the rural poor. Yet many agricultural sectors remain stuck in low-value exports with poor returns, limited growth prospects and few development dividends. In this context, policy-makers have sought to upgrade the terms of engagement in the global trade of commodities by shifting to higher-value exports with stronger links to the economy and better sustainable development impacts. Tea value chains are an interesting case in point. Tea exports have deep historical roots in several low-income and least developed countries, where production continues to support a significant portion of the population. Government and development agencies have made it a priority sector with a view to improving the sustainable development impacts of production. Yet many of the challenges of agricultural value chain upgrading can be found in stark relief in the tea sector. This paper conducts a comparative analysis of the export tea value chains in Sri Lanka, Kenya, and Nepal with a focus on how policy influences chain upgrading and the implications this has for trade patterns, competitiveness and sustainable development.

The comparison of tea value chains in Sri Lanka, Kenya, and Nepal is interesting because it sheds light on how different government policies, firm organisation and standard adoption led each country's tea sector to occupy a unique competitive niche and set of sustainability impacts. In Kenya, policies that promoted productivity and supported the status quo in terms of firm ownership encouraged product upgrades which led to a competitiveness profile in high-quality bulk exports. This strategy provided employment, stimulating consumption and fiscal linkages, but sparked little connection to the rest of the economy and had little scope for triggering economic development. In Sri Lanka, policies that incentivised functional upgrading encouraged a competitiveness profile in value-added packaged products which stimulated forward linkages from the tea sector to the rest of the economy, helping to trigger broad-based economic development. However, further steps are needed to ensure continued social and environmental benefits from this strategy. In Nepal, policies that promoted product upgrading from the bulk low-quality to the speciality subchain helped to diversify exports and earn higher revenues for a fraction of the output, but infrastructure, quality, and marketing remain a challenge.

Policies for upgrading in the tea value chain affect not only the competitiveness of exports but also sustainable development achievements on the ground. Poverty-related sustainable development goals depend on the condition of labourers and smallholder farmers in the tea value chain. Labourers on plantations seem to have better job security and may earn more, but labourers on smallholder plots tend to experience less harassment and exercise greater control over their working conditions, although evidence is mixed on their welfare. Upgrading can reduce the environmental footprint of tea production through minimising agrochemical use, improving energy efficiency, and reducing deforestation. Empowerment of women in the tea value chain is essential since they are most often responsible for the tasks that determine the quality, and thus price, of the made tea.

Producing countries face several challenges to upgrading in their tea value chains, including poor infrastructure, logistics and customs procedures; antiquated tea processing machinery; low quality of the raw product; and labour scarcity and welfare. The absence of a shared vision amongst fragmented chain actors and insufficient research into the development of the tea value chain can cripple upgrading efforts. High tariffs on value-added products in export markets, and a lack of expertise and equipment, present formidable barriers to moves into packaging and marketing activities.

The paper identifies and recommends the following policy interventions to overcome these challenges and promote a sustainable industry.

Create a national tea policy through multi-stakeholder collaboration: The creation of a national policy via engagement with all value chain actors can embody a shared vision for the future of the sector. The policy should also outline what needs to be done to implement it, including relevant policy tools and a plan to resource delivery.

Establish a one-stop tea sector institution covering the entire value chain: Countries that have established a strong, well-resourced central body responsible for tea, such as an independent tea board, have had a better track record of implementing a national tea policy and building a tea value chain that promotes sustainable development.

Improve tea quality by reaching out to smallholder farmers: Quality is the single most important ingredient in the competitiveness of developing countries' tea exports. The government can complement and coordinate with other stakeholders' projects, including the implementation of certification schemes, to improve smallholder field practice.

Address infrastructure and political constraints: Governments should invest in roads, electricity, customs procedures and ensure political stability to ensure these are not a binding constraint on the competitiveness of their country's tea exports.

Establish labour practices that improve quality of produce, reduce poverty and ensure gender equality: Government should address labour shortages through policies that encourage immigration into tea farming areas and through payment and hiring methods that improve the quality of plucking while improving the welfare of labourers.

Encourage domestic value addition: National quality labels and standards infrastructure should be used to facilitate product upgrading to higher-value, high-quality segments of the bulk tea value chain, particularly in least developed countries (LDCs) and low-income countries (LICs). Government subsidies for new machines and training can improve the quality and price competitiveness of processing firms while reducing their carbon footprint. Finally, export subsidies, tax rebates and machinery subsidies could be used to trigger functional upgrading to downstream packaging and marketing nodes of the tea value chain.

Establish and resource a national tea research body: A well-resourced domestic tea research body should be established with a diversified research portfolio that prioritises productivity, outreach to farmers, and marketing.

Address tariff escalation: Government trade negotiators from tea producing countries should advocate for low tariffs on processed agricultural goods at the WTO and in regional and bilateral trade deals.

1. INTRODUCTION

The export of agricultural commodities has long been seen as a first step for developing countries seeking to reap the advantages of international trade. Developing country governments have promoted agricultural exports as a mean to boost export earnings, expand rural incomes and employment and stimulate linkages elsewhere in the economy. Exports of agricultural commodities have been lauded for their potential to bring the benefits of globalisation to the rural poor in developing countries.

The low entry barriers and labour intensity of export crop production has indeed promoted rural employment in many low-income developing countries. Yet many agricultural sectors remain stuck in low-value exports with poor returns, limited growth prospects and low development dividends. The volatility of international commodity prices, and quantities sold, make agricultural exports an unsure proposition. Even in the case of lucrative export crops, weak connections to the rest of the economy have limited impacts from the enclave economy. In this context, policy-makers have sought to upgrade the terms of engagement in the global trade in commodities by shifting to higher-value exports with stronger links to the wider economy and better sustainable development impacts.

Tea value chains are an interesting case in point. Tea exports have deep historical roots in several low-income and less developed countries, where production continues to support a significant portion of the population. The need to process tea immediately after harvesting provides opportunities to foster linkages to the rest of the economy. Government and development agencies have made it a priority sector with a view to improving the sustainable development impacts of production. Despite these opportunities, many of the challenges of agricultural value chain upgrading can be found in stark relief in the tea sector. All too often, producing countries remain stuck in exports of bulk tea with most value added captured in overseas packaging and marketing nodes of

the chain. International markets for tea stress the importance of quality improvements that may be challenging for smallholder farmers and small- and medium-sized enterprises. Tea farming can worsen deforestation and land degradation and entail poor working conditions. Production often occurs in remote, hilly areas with limited connections to the rest of the economy.

Developing countries' tea producers have had varying levels of success in meeting these challenges and reaping the development dividends of tea exports. Kenya's tea policy fostered productivity and compliance with standards that made it the largest exporter of tea in the world today. In Sri Lanka, policies which incentivised quality and value-added processed exports have made it into a leader in higher-priced exports. Small- and medium-sized tea producers in other developing countries, many of whom are least developed countries (LDCs) or low-income countries (LICs), are at an earlier stage of participation in the global tea trade. Like Kenya and Sri Lanka before them, they are attempting to upgrade the terms of their engagement in their global value chain (GVC) to encourage sustainable development. Nepal is typical of this group in that its tea exports hold great potential for the future, but it needs policy interventions that can address challenges of quality, infrastructure, and reputation.

This paper conducts a comparative analysis of the export tea value chains in Kenya, Sri Lanka, and Nepal with a focus on how policy influences chain upgrading and the implications this has for trade patterns, competitiveness, and sustainable development. The four research questions are:

1. How have the tea global value chains developed in Kenya, Sri Lanka, and Nepal?
2. How have different constellations of government policies led to different upgrading strategies and patterns of competitiveness in these chains?

3. What are the sustainable development implications of these constellations, strategies, and patterns?
4. What are the policy implications?

This analysis is particularly aimed at international and national policy-makers looking to understand the competitiveness and sustainability implications of different policy approaches for upgrading in commodity value chains. The report provides specific insights into the nature of sustainability in the global tea trade that will be of interest to those active in the tea GVC.

Methodologically, the study is based on data from international and national trade and agricultural databases, as well as desk research and supplementary interviews. In particular, the analysis draws on interviews conducted for this study (with the Nepal Tea and Coffee Development Board, NTCDB, and Central Tea Cooperative Federation, CTCF, in Nepal, the Tea Directorate in Kenya and the Tea Board in Sri Lanka), previous informant interviews for a United Nations Food and Agriculture Organization (FAO) study (Mohan forthcoming), 70 qualitative interviews and 300 quantitative surveys across the Nepali Tea Sector (Mohan 2013, 2014, 2016, 2017) and secondary sources.¹

¹ Key secondary sources include a study and export strategy for Nepali tea funded by the International Trade Centre (ITC 2017); a capacity needs assessment of the tea value chain in Kenya by the African Capacity Building Foundation (ACBF) and the Kenya Institute for Public Policy Research and Analysis (KIPPRA 2017); and studies of the Sri Lankan tea sector (Ganewatta 2002, Ganewatta et al. 2005).

2. CONTEXTUALISING TEA GLOBAL VALUE CHAINS AND SUSTAINABLE DEVELOPMENT

2.1 Structure of the Tea GVC

Firms organise the production and trade of agricultural products through global value chains. GVCs coordinate the fragmented and globally dispersed process by which a product is brought from conception through different phases of production and delivery to consumers, and also extend to final disposal after use (Kaplinsky and Morris 2001). Tea is no exception: it is produced and traded in GVCs that connect labourers in developing countries, who pluck tea leaves, to consumers who enjoy their morning cup of tea.

Since tea grows best in warm climates with at least 127cm of rainfall a year and on well-drained, slightly acidic and fertile soils, and since flavour is improved at elevations up to 1,500 metres, most tea is grown in hilly regions of tropical developing countries. Tea is grown from seed or cuttings either on large company-owned plantations (also known as estates) or on small family-owned farms. After a five-year early growth period, tea leaves are plucked from the bush at regular intervals. The leaves must be processed within a few hours of plucking or they will degrade, so they are transported from the field to a local processing factory in the producing developing country.

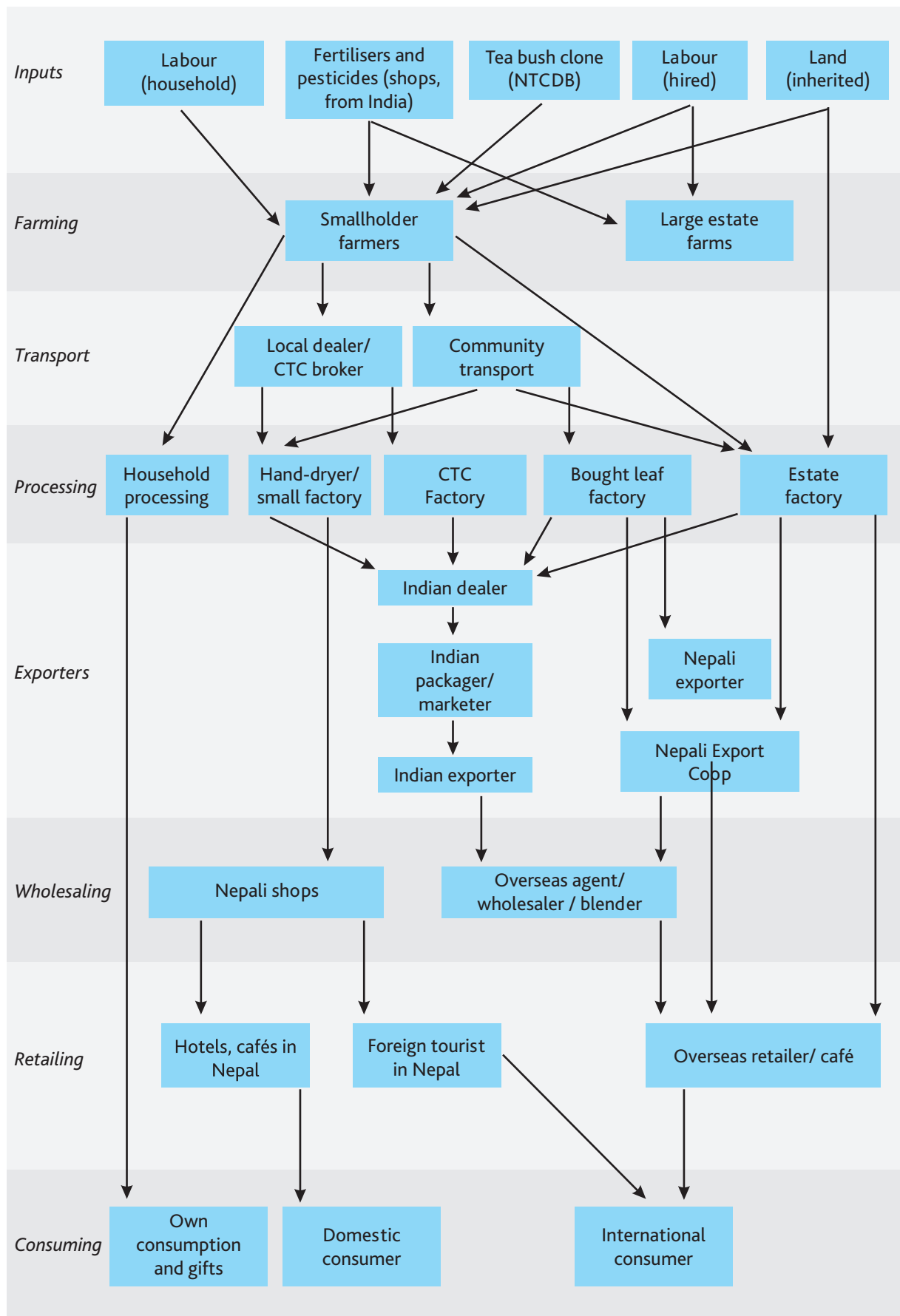
At the processing factory, the fermentation process determines the type and colour of the final tea product. Black tea is heated, fermented and dried: the fermenting giving the final leaf its black colour. Green tea is dried right away and is not fermented, so it retains the original green colour of the leaf. The manipulation process of the tea leaf determines its form. For the crush, tear and curl (CTC) method, the tea leaves are passed through a series of cylindrical rollers that have hundreds of small sharp teeth that rip the leaf into small pieces. This generates small, fine, easily soluble tea for tea bags. The orthodox method involves withering, rolling and drying the tea leaf. This generates whole-leaf loose tea. The packaging process affects the local value added of the tea: when

it is packed into bulk boxes and exported, very little value is added. Alternatively, the factory may add value to the made tea by putting it into tea packs—which are bags of loose-leaf tea ready for sale, particularly popular in Middle Eastern and Russian consumer markets—or sale-ready boxes of individual tea bags ready for infusion, both of which sell at a premium. The exact configuration of the value chain differs by country and marketing arrangement: the main chain links for the Nepalese conventional orthodox tea value chain are shown, as an example, in Figure 1.

The tea is then sold to buyers via auction or direct sale. At auction, prices are negotiated for batches of bulk tea identified by their place of origin, season, certification and sampling quality. In a direct sale, samples are sent from the factory to the overseas buyer, who then offers a price. The tea shipment is tested for compliance with relevant food safety standards, and the shipment is sent over land and sea to the importing country and buyer.

Buyers who purchase made tea from the factory are the lead firms in tea GVCs. They may be a multinational corporation (MNC), an exporting firm or an overseas wholesaler or retailer. They generally control the blending, packaging, product development and marketing activities that add most of the value to the product, except where local factories add value by undertaking packaging as noted above. After sourcing the made tea from processing factories in producing countries, professional tea tasters mix different lots of tea together, sometimes with other ingredients, into a blend that meets the firm's taste, colour and brewing requirements. The blended tea is then packaged, either in tea bags or loose-leaf tea packets. The final packaged tea is labelled with the lead firm brand (e.g. Tetley) and the variety defined by the firm's product development team (e.g. Lady Grey), which may also develop unique tea infusion packaging (e.g. tea pyramids). Marketing activities include advertising, outreach to restaurants and

Figure 1: The Conventional Nepal Orthodox Tea Value Chain



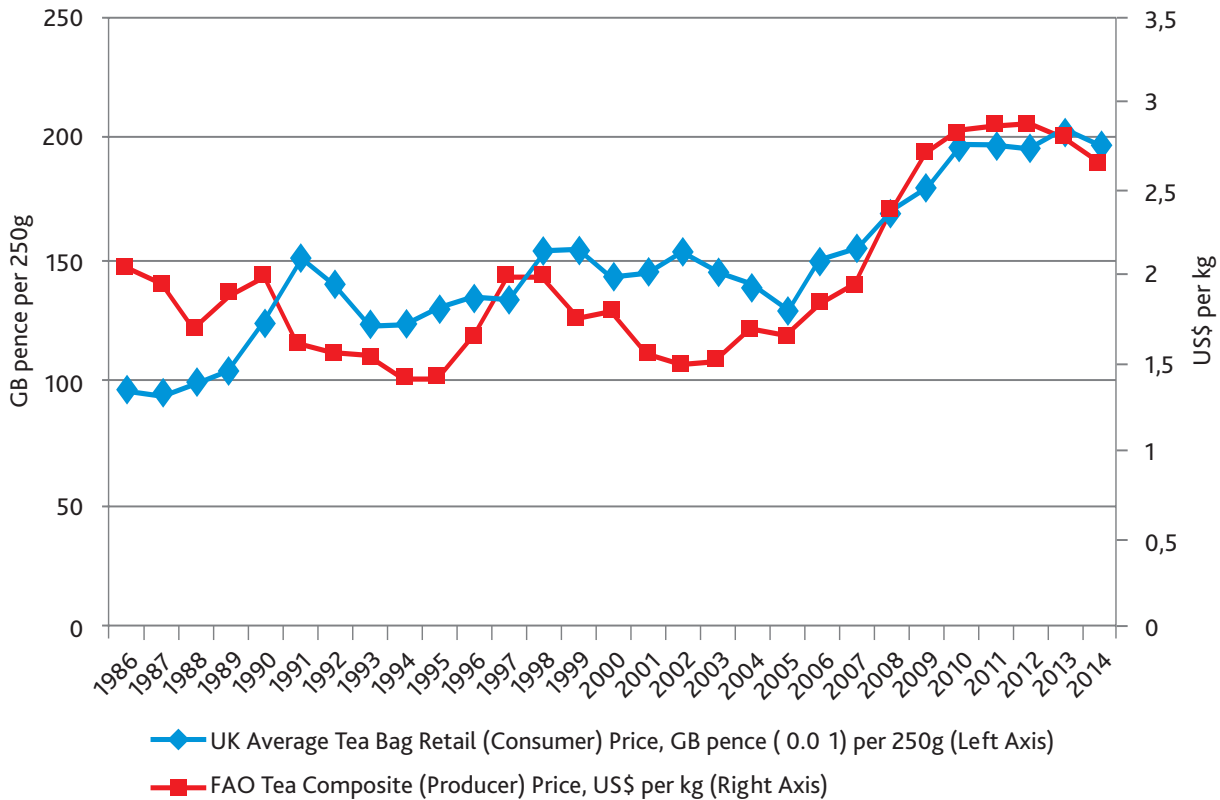
Source: Mohan (2014)

caterers and liaison with retailers. These links of the value chain are the ones where most value is added because they are skill and knowledge intensive and, since it is difficult to acquire these skills and knowledge, there are high entry barriers to conducting such activities. As a result these activities are highly profitable but difficult to replicate for new entrants, particularly for firms in developing countries. Indeed, there are few buyers: a handful of large global agri-food multinational corporations, including Unilever, Tata and Twinings, dominate the tea trade, accounting for some 85 percent of global tea sales (Blackmore 2014). The high degree of concentration at the buyer node gives the tea value chain an hourglass-shaped concentration pattern, with a very large number of upstream smallholder farmers, many processors, a few buyer-exporter-blenders-marketers in the middle and many retailers and consumers.

This market structure has been instrumental in driving a wedge between consumer prices and

producer prices (Mohan forthcoming). Figure 2 shows that consumer prices, represented here by the UK Retail Price Index average tea bag price, have increased by 104 percent since 1986. The price received by exporters in developing countries, represented here by the FAO Tea Composite Price Index, has increased by only 29 percent over the same time period. Indeed, if we look at the change from 1970 to 2014—an extended time period for which consumer price data is not available, but which can be expected to similarly reflect a trend of strong consumer price increases—we find that producer prices, measured by the FAO Composite Price Index, have actually decreased by 15 percent. It is clear that, although consumer prices have been high and increasing, producer prices have not kept pace. It appears that since 1986 the price paid by consumers for a cup of tea has been relatively high, while the price received by producer countries has been relatively low, and the gap has increased over time (Figure 2).

Figure 2: UK Consumer Prices and Global Producer Prices for Tea 1986-2014



Source: FAO; UK Office for National Statistics.

This price wedge has been driven by two factors: increased market concentration amongst lead firms and the rise of branded teas. With few buyers and many producers, there is little competition to buy tea and the prices received by producers decrease. Furthermore, most consumers today decide to buy one tea rather than another based on the brand label on the tea box, so strong brands are valuable and generate rents.

2.2 Lead Firm Strategies

The lead firm strategy differs depending on the type of buyer firm. MNCs conduct exporting, blending, packaging, product development, and marketing in-house. Production and processing, along with retailing, are usually outsourced, with the exception of a handful of tea plantations and cafés that are owned directly by MNCs. Exporters are firms based in developing countries that sell to smaller, non-MNC buyers overseas, and sometimes to MNCs as well. Overseas wholesalers are like MNCs, but smaller in scope and limited to one country: they conduct blending, packaging, product development and marketing, but outsource production, processing, exporting and retailing. They are more likely to sell single-origin tea varieties and buy tea directly from a single estate or factory, developing a relationship with it over time. Foreign retailers are similar to their wholesale counterparts, but they conduct retailing as well: these are single cafés, online tea boutiques or small café chains that sell single-origin teas. They conduct packaging, marketing, and retailing in-house but outsource production, processing, and exporting. Finally, a minority of tea is bought within producing countries: domestic buyers conduct blending, packaging, and marketing, outsourcing retail to local shops and restaurants.

Sourcing decisions are driven primarily by quality and price considerations. Although lead firms rarely grow or process tea themselves, they affect the practices of producers in developing countries through their standards requirements and sourcing decisions. Quality is defined by observable product characteristics that can be tested, notably according to food

safety criteria for agrochemical residues, taste and colour, as well as by unobservable product and process methods used in the creation of the tea. Lead firms obtain the quality they desire by sourcing tea that is compliant with food safety and sustainability standards. They require that suppliers show documentation from a standards board certifying compliance to importing country public safety standards, and often to international private standards such as those of the International Organization for Standardization (ISO) or the hazard analysis and critical control point (HACCP) system as well. Developing country suppliers often struggle to meet public food safety standards in importing markets that can reject pre-shipment samples and/or the shipment itself because of excessive pesticide or fertiliser residues. Rejection on food safety grounds can have negative long-term impacts on a country's reputation. Furthermore, private sector sustainability standards have become prerequisites for sales into certain markets. Unilever, for example, has arranged long-term purchasing agreements with factories and farmers certified to the Rainforest Alliane (RA) standard. Small overseas retailers and wholesalers prefer to source organic and fair trade certified tea. Buyers sometimes fund, or at least coordinate with, projects which assist producers in the certification process. Development agencies and governments are often important partners in this process too.

MNCs source their tea mainly at auction, though some is procured through long-term purchasing agreements or firm-owned plantations. They tend to buy black CTC tea for inclusion in tea bags and make their purchases, balancing quality and price criteria with a view to obtaining the target blend. In practice, MNC buy two types of tea for their blends: most of the tea they purchase is high-quality bulk tea at a price of around US\$5/kg, where basic standards compliance is a given, certification to sustainability standards is common and the quality of the made brew is strong. The majority of Kenyan tea is of this type. This is complemented by purchases of bulk low-quality tea used as filler at a price of approximately US\$2/kg, purchased at auction, which are often rejected at the last minute

for violation of public safety standards. The majority of Nepali tea exports, for example, is of this type. There is strong competition amongst LDCs, LICs and other developing countries to supply this low-quality bulk tea, despite the low prices and low margins involved. Key current exporters of this type of tea are Vietnam, India and Malawi.

Overseas wholesalers and retailers source their tea through direct sale or auction. Wholesalers and retailers from developed countries buy orthodox loose-leaf tea direct from factories for sale in speciality boutiques and cafés. These speciality teas are loose-leaf green, oolong or black orthodox teas of outstanding quality, which can fetch US\$20-100/kg; Taiwan exports significant quantities of tea of this type. Wholesalers from emerging and developing countries buy tea, usually of the black orthodox loose-leaf variety, in bulk or in value-added tea packs or tea bags. Value-added tea has been transformed by branding, packaging and/or flavouring: Sri Lanka, for example, exports tea bags with a local brand. In both speciality and developing/emerging markets, sourcing decisions turn on the quality of the tea, but unlike for MNC end markets, quality is defined not in terms of standards per se but in terms of pure taste. Tea that sells on speciality markets is like fine wine: it is purchased for its subtlety of taste, quite different from the bulk product that makes up most of global trade in tea (and wine). Markets in emerging countries similarly prize the quality of the made cup of tea, even if it is uncertified to global standards, and are willing to pay a premium for fine-tasting tea.

Finally, buyers within producing countries buy tea from their local producers. They tend to source lower-quality bulk tea for bags for local sale, though in several producing countries there are speciality cafés opening which sell high-quality loose-leaf tea.

Although sourcing decisions are driven primarily by quality and price considerations, trade barriers are also a factor. Tariffs on made tea are quite low around the world, but packaged

value-added teas face high tariffs in most import markets. Furthermore, non-tariff barriers to trade can significantly impede market access. Pre-shipment safety approval is costly and time-consuming, particularly for tea producing countries without a domestic standards body or with one that is not recognised by the importing country. Within countries, the competitive environment is shaped by infrastructure and political conditions that affect the capacity to bring the product to port.

Lead firms sell the final product to a retailer, restaurant or catering firm. It is difficult to gain access to retail firms and in practice just a few global tea MNCs have guaranteed shelf space in the supermarkets where most consumers buy their tea.² Similarly, catering firms and restaurants for the most part source from large tea MNCs, although as noted small wholesalers and retailers often supply speciality cafés and select restaurants.

2.3 Production and Consumption Trends

The international market for tea has changed significantly over time. After the colonial period, several developing countries, particularly in Africa, expanded their production of tea in the 1960s and 1970s, and this process accelerated in the 1980s as tea plantations were privatised, new plantings were added and export promotion efforts led to a structural oversupply in global tea markets that put a downward pressure on prices. By the late 1990s and early 2000s, there was fierce competition between exporting countries to capture greater market share (Groosman 2011). Droughts in 2009 and 2011 and corresponding reductions in quantities led to a correction in the supply situation, which is widely thought to have led to a long-term stabilisation of prices. The story for tea globally in 2017 is one of stronger prices and overall growth, driven in part by this improved supply and demand balance.

Although China and India are the world's leading producers of tea, they are also the biggest consumers (see Table 1). China does export

2 A few Sri Lankan firms, who sell their branded tea bags in stores around the world, are the exception to this rule.

significant quantities of tea; most of this is green tea, much of which goes to Japan. Kenya and Sri Lanka are the biggest exporters of black tea, while other major exporters of black tea include India, Vietnam, Indonesia, Uganda, Malawi, Tanzania and Rwanda. On the consumption side, while China, India and Turkey mostly consume tea made at home, Russia, the US, Pakistan, the UK, Egypt and Iran import substantial quantities of black tea.

The US and the UK, as well as other developed country markets, buy tea bags from MNCs that are often certified to a sustainability standard. Markets in Russia and the Middle East, on the other hand, rarely require sustainability certification but are willing to pay a premium for higher-quality tea. Demand in emerging and developing countries is growing today, while consumption in developed countries is relatively stagnant.

Table 1: Top Ten Ranked Leading Countries in Tea Production, Export and Consumption (by Thousand Tonnes, 2013)

	Production	Export	Consumption
1	China (1,924.5)	Kenya (415.9)	China (1,614.2)
2	India (1,200.4)	China (329)	India (1,001.4)
3	Kenya (436.3)	Sri Lanka (311)	Turkey (228)
4	Sri Lanka (343.1)	India (209.2)	Russian Federation (159.1)
5	Turkey (227)	Vietnam (133.5)	United States (127.4)
6	Vietnam (185)	Indonesia (70.8)	Pakistan (126.6)
7	Indonesia (152.7)	Uganda (56.7)	Japan (119.1)
8	Japan (84.7)	Malawi (40.5)	UK (116.2)
9	Argentina (78.9)	Tanzania (26.2)	Egypt (99)
10	Bangladesh (66.2)	Rwanda (23.5)	Iran (83.4)

Source: Chang 2015

2.4 Upgrading Possibilities in the Tea GVC

The tea value chain has promising opportunities for producing developing countries. Yet intense competition and low margins in some parts of the market make it all the more important for tea producing countries to upgrade their position in value chains as a means to stay competitive and reap development benefits. This GVC “upgrading” means moving to higher-value activities to increase the benefits from participating in global production (Bair and Gereffi 2003). Three strategies have been suggested, among others, to achieve this upgrade (Kaplinsky and Morris 2001, Staritz et al. 2016), namely:

1. process upgrading (improving technology or production systems to gain efficiency, productivity and/or flexibility);
2. product upgrading (shifting to more sophisticated and complex products);

3. functional upgrading (undertaking higher-value tasks in the value chain).

Process upgrading in the tea value chain entails changing processes, including through technologies, institutional arrangements and training, to reduce costs and improve productivity. This can entail, for example, investments in energy-efficient processing technologies that reduce energy costs and wastage. It can also involve changing the institutional arrangements: for example, whether the land is operated under a plantation or smallholder system affects costs and productivity. Training of smallholder farmers or factory staff can also improve practices to achieve efficiency gains.

Product upgrading is crucial in tea value chains since different tea products differ significantly in their competitiveness, entry barriers, and profitability. The tea value chain in a given country could include, for example,

the production of black low-quality CTC tea for export, certified green orthodox tea for export, and loose-leaf orthodox black tea for domestic consumption. In the GVC literature, these segments have been alternatively called streams, subchains or threads into different end markets. The low entry barriers of the bulk low-quality tea subchain make it particularly accessible for small developing countries that produce small quantities of tea and find it difficult to improve quality or undertake functional upgrading. However, there is intense competition in the low-quality bulk market, such that high supply can outstrip demand leading to low prices. The low-price and high-quantity nature of the business combine to make it a relatively less lucrative subchain. Furthermore, climatic changes induce fluctuations in global output and thus in price and export revenues. Product upgrading in the tea GVC often entails a move away from low-quality black CTC tea towards higher value subchains.

The speciality export subchain is considerably more lucrative, and several producer countries have moved part of their supply from the low-quality bulk to the speciality subchain through product upgrading. However, the quality improvement required for participation and successful competition in this value chain stream is a formidable entry barrier. Production changes required may include refining the fermentation process of black tea, reducing the damage from transportation of the tea leaf or learning the craft and technologies involved in green tea production. There are relatively fewer firms competing in the high-quality bulk stream than the low-quality bulk stream and it is more lucrative, but the cost of certification, degree of standardisation and large quantities required for successful participation in this market put it out of the reach of many LDCs and LICs.

When undertaken successfully, product upgrading strategies can increase returns from production. When a firm moves to a high-quality certified product, the firm can sell to a new buyer willing to pay a premium above world prices, and producers can also achieve higher productivity (Ruben and Zuniga 2011). These

higher returns can reach the most impoverished actors in the chain (Mohan 2013). Furthermore, higher-value subchains often have less price fluctuations and more secure market access (Mohan 2017). However, the success of product upgrading in the tea value chain depends on the local institutions that mediate between upgrading efforts, change in the value chain and livelihood impacts (Mohan 2016).

Functional upgrading in tea GVCs can help trigger inclusive growth in producing countries. Tea is typical of an additive GVC (Kaplinsky and Morris 2016) in that each stage of the chain sequentially adds value to the original commodity. Producers can thicken their participation in the chain through the capture of more value-added downstream activities in the chain that stimulate backward and forward linkages throughout the economy. In the tea value chain, firms that previously focussed on processing raw tea leaf into made tea undertake such functional upgrading when they move into packaging. A processing factory could even develop its own brand for export. There are significant barriers to entry into these activities, including the cost of importing packaging machinery. Import tariffs may apply to such machinery as well as to packaging supplies and any tea imported for blending with domestic varieties. Most tea producing countries do not produce the inputs used in these GVC activities, which limits the extent to which they stimulate growth in the domestic economy through backward linkages (Talbot 2002). Furthermore, the capital and knowledge intensive nature of downstream activities such as packaging, blending and marketing rarely matches the producing economies' factor endowments. The task of acquiring blending, packaging and marketing expertise is made difficult by the lack of domestic know-how, which is usually addressed by bringing in expensive overseas consultants. Given the extent of the physical and human capital costs, packaging and marketing for global competitiveness requires large economies of scale. Scale may be difficult to attain, however, owing to demand constraints. It is very difficult to get access to retailers and supermarkets, and advertising at international trade shows and to the general public is costly.

Notwithstanding these considerations, there can be long-term benefits from taking up value-added packaging and marketing activities, particularly in terms of returns and forward linkages. Successful marketing of packaged and marketed tea leads to high margins on the final product. Furthermore, the knowledge acquired in blending, packaging and marketing can be used elsewhere in the economy, and particularly in the agri-food industry. Over time, firms can seek domestic suppliers for packaging and blending activities. All of these factors can help trigger sustainable growth in the economy. However, the barriers to entry are formidable enough, and the prospective benefits sufficiently diffuse and long-term, that very few producing countries have attempted to move into branded and packaged tea. Indeed, Sri Lanka is alone in having had significant export success in this domain (see Section 3.4). Other countries typically have just one or two processing firms that package and brand a small fraction of their produce for a specific buyer. While functional upgrading has been limited amongst developing country processing firms, it has been found in other chain links. Farmers have taken up processing and even exporting their own tea directly, often through their cooperatives, while labourers have become farmers and tea brokers.

The nature of tea value chain governance itself facilitates product and process upgrading, but limits the prospect for functional upgrading. MNC lead firms maintain tight control over the blending, packaging and marketing nodes of the chain through their expertise in blending and consumer loyalty to a select few brands. Their oligopoly over marketing activities in the tea chain limits the scope for functional upgrading to that activity, while the capital costs involved in other downstream activities (e.g. packaging) makes them less appealing for processing firms, as noted. Notwithstanding the dominance of MNCs in the downstream value chain, processing firms in producing countries are for the most part functionally independent of the overseas firms who buy their product. Processing firms in developing countries have latitude when it

comes to upgrading their own activities and activities upstream in the value chain. They can, for example, improve transformation efficiency at the factory-level and improve productivity amongst supplying farmers.

In terms of products and buyers, only a select few factories in Kenya and elsewhere are under exclusive contracts to a specific buyer. Other processing firms thus have considerable marketing freedom that gives them the scope to initiate product upgrading for new buyers.³ Indeed, product and functional upgrading—and to a lesser degree process upgrading—are often undertaken in order to access new end markets and diversify buyers. Further up the chain, governance shapes not only upgrading opportunities but their outcomes: processing firms often pay for and coordinate the product upgrading efforts of their supplying farmers (or labourers), who are in turn under contract to sell all their tea to the factory owned by the firm that coordinated the upgrading. However, farmers often choose to sell their best produce on the side to other buyers: for example, in Vietnam, Chinese traders often buy some of the best leaf from farmers contracted to supply wholly to local factories. This reduces the quantity available to processing firms and the average quality of their made tea while eroding the benefits from investments in product upgrading.

Government policy can address some of these obstacles to upgrading opportunities, including through collaboration on product upgrades to more lucrative subchains. Furthermore, reductions in tariffs on imports of machinery and supplies for value-added packaging can generate incentives for functional upgrading. Process upgrades are stimulated through regulations on outdated technologies and by providing subsidies for energy-efficient processing technologies. Tea boards could work in conjunction with legal authorities to ensure contract enforcement between farmers and factories to reduce the extent of side-selling and thereby strengthen the incentives for factories to invest in product upgrades.

3 With the exception of a select few factories in Kenya and elsewhere that are under contract to a specific buyer to supply wholly to that buyer.

3. MAPPING THE TEA VALUE CHAINS IN KENYA, SRI LANKA, AND NEPAL

3.1 End Markets

The three case study countries sell their tea into very different markets (see Table 2).

Sri Lanka competes with Kenya as the world's largest tea exporter but it has a very different niche. While Kenya mainly exports bulk CTC black tea into MNC value chains, Sri Lanka exports orthodox black tea to buyers in the Middle East and Russia. Both markets are quite demanding, albeit in different ways. The MNC market which Kenya serves requires certification to international private standards (VSS), and notably voluntary sustainability standards, along with consistency of produce and a dark colour of made tea. The tea connoisseurs of Russia and the Middle East demand fine tea with excellent tasting quality. The orthodox black tea sold by Sri Lanka

to these clients sells much like fine wine, at prices that vary according to the taste and shape of the leaf, while the Kenya CTC tea sold at auction to MNCs sells like other commodities, according to its certification and grade. Sri Lankan tea tends to sell at higher prices than its Kenyan counterpart, primarily because the tea tends to be of higher tasting quality and because it receives higher prices for its packaged tea products. Nepal, on the other hand, sells largely bulk low-quality tea: half of the tea it produces is consumed domestically, 48 percent is sold to India and the small remainder is high-quality tea sold to speciality markets in the EU and US or to Russia.

The case study GVCs differ in the nature and degree of market concentration. The Kenyan tea value chain is very focussed on overseas

Table 2: Tea Exports of Kenya, Sri Lanka and Nepal (2016)

	Kenya	Sri Lanka	Nepal
Export quantity (kg)	480,330,230	288,771,000	13,289,000
Global rank (by quantity exported)	1	2	22
Value exports (US\$)	1,088,468,000	1,251,730,000	12,282,000
Global rank (by value exported)	2	1	34
Average export price (US\$/kg, ITC data)	2.36 (3.21)	2.99 (4.81)	1.77 (2.22)
Percentage of exports value-added	14	60	<15
Export concentration ratio (%)*	0.22	0.06	0.7
Consumed domestically (% of production)	5	10	45
Top seven export destinations by quantity (% of exports)	Pakistan (29); Egypt (19); UK (10); UAE (7); Afghanistan (7); Sudan (5); Russia (4)	Russia (12); Iran (12); Iraq (11); Turkey (9); UAE (6); Libya (4); Syria (4)	India (96); Russia (1); Germany (1); Pakistan (0.4); Netherlands (0.3); US (0.2); Japan (0.2)

Source: All data is for 2016. Most figures are from producer country government's tea boards, with a few notable exceptions: Export data is from ITC for product code 0902 (black and green tea), but rankings are for black tea only.*Export concentration is from ITC and is based on the Herfindahl index. It is calculated by squaring the share of each country in the selected market and by summing the resulting numbers.

markets: more than 95 percent of production is black CTC tea and 95 percent of production is exported overseas. The Kenyan GVC's dependence on bulk exports makes it relatively vulnerable to fluctuations in international prices. The value of the Kenyan shilling relative to the US dollar is a key factor in the profitability of Kenyan exports, along with the international price level and climatic conditions (Kemboi 2012), which can vary significantly (FAO 2015). A tenth of Sri Lankan tea is consumed domestically. On the other hand, the large and stable domestic demand for Nepali tea secures and stabilises production there.

Nepal's exports are the most concentrated since almost half of the country's tea is sent to India. There, it is often mixed with Darjeeling tea and sold at auction in Calcutta for lucrative prices under the Darjeeling label and re-exported overseas. These exports yield very low margins for Nepali actors in the chain. Less than three percent of production is destined for the much more lucrative direct export market. Those markets, notably in Germany and the US, are more demanding in terms of quality, public food safety and sustainability certification. Kenya also has a relatively high export concentration ratio of 0.22, which exceeds that of other major exporters: Sri Lanka and China, for example, have a ratio of 0.06 (see Table 2). In 2016, 29 percent of Kenyan exports went to Pakistan, 19 percent to Egypt and 10 percent to the UK, much of it within MNC supply chains. Sri Lankan tea exports are more diversified and tend to occur outside MNC supply chains. In 2016, 12 percent of its exports went to Russia, 12 percent to Iran and 11 percent to Iraq. Sri Lankan tea is rarely exported to high-income developed countries: In fact, there were no western countries amongst the top ten export destinations, and the EU altogether accounted for just nine percent of exports. Whilst sales to Russia and Middle Eastern markets increase the premium for quality and rarely require sustainability certification, political instability in these countries, along with climatic fluctuations, increases export volatility.

Tea is sold in producing countries by different methods. Some 82 percent of Kenyan tea is sold via auction in Mombasa (KIPPRA 2017), with the remainder sold within MNC value chains, sold directly to speciality tea buyers or consumed within the country. Just five percent of Sri Lankan tea is sold at the Colombo auction, with the rest sold directly to overseas buyers. Since Nepali tea sales are not allowed at the nearby Calcutta auction, most Nepali exports are conducted via direct sale to Indian firms and shipped across the border. Nepali exporters face an often time-consuming and costly process of getting their products to overseas end markets—for example, shipments incur fees and delays at the Indian border on their way to port, and food safety testing is costly (ITC 2017).

These distinct end market profiles shape the upstream value chain in each country, as the next subsection shows.

3.2 Upstream Production and Processing

Although traditionally the vast majority of tea was grown on plantations, in virtually all countries the last thirty years have witnessed the mounting importance of smallholder tea production. The quality of tea leaf can be more readily controlled on plantations than on smallholdings owing to more systematic timing of plucking, ready training and supervision of employees and long-term contracts that build labour skills. However, there are significant labour rigidities on the plantations (Herath and Weersink 2009): intense government regulation of plantation labour, stringent union demands and high rates of absenteeism combine to make plantation labour more costly and lower-output than on smallholder farms. This has led to a rise in smallholder production with positive development implications including increased self-determination of small-scale farmers, better living conditions and increased opportunities for occupational and crop diversification, but has posed new business challenges, including the coordination of quality across thousands of small firms.

The production profiles of the three countries' tea value chains differ: for example, smallholder farmers grow a higher proportion of Sri Lanka's tea than in the other two, and almost all Kenyan tea is processed using CTC methods while the others use a mix of CTC and orthodox processing. They also obviously differ in scale, with Kenya producing the most tea at the highest productivity rates, Sri Lanka a close second and Nepal developing a small, nascent tea sector. Perhaps most importantly, however, they have taken a markedly different approach to upgrading in the tea value chain. Kenya has focussed on product upgrading, notably through certification schemes and production improvements that have enabled it to move from low-quality to high-quality bulk tea subchains. It also pursued process upgrades that improved productivity, including through farmer training and certification schemes and

investment in infrastructure. Sri Lanka, on the other hand, has focussed on functional upgrading, moving to packaging and branding activities in the downstream chain with the assistance of active government policy. It also pursued product upgrading through improvements to the quality of the tea leaf, made possible by factory and farmer interventions as well as government branding of high-quality leaf. Finally, Nepal has pursued product upgrades for a small part of its supply, which it has moved from bulk low-quality to speciality high-quality exports through adoption of certification schemes paired with farmer training programmes. The rest of this subsection outlines the upstream value chains in the three countries and describes their upgrading strategies in more detail. Later on, Section 5 will explore the implications of these strategies for sustainable development.

Table 3: Production Characteristics of Tea Value Chains in Kenya, Sri Lanka and Nepal (2014-16)

	Kenya	Sri Lanka	Nepal
Hectares (2015/16)	209,426	205,000	27,688
Production quantity (kg, 2016)	473,010,000	292,362,000	24,263,744
Average yield (made kg/ha, 2014)	2,193	1,523	1,110
Ranking world production (green and black tea, quantity, 2016)	3	4	21
Black tea (% of production)	96+	93	88
CTC tea (% of production)	92%+	6	76
Certified (% of production)	>88	20	5
Output from smallholders (% of production)	60	75	41
Processing factories (number)	106	250	41
Smallholder farms (number)	600,000	400,000	15,040
Smallholder household income from tea (%)	50 (east); 8 (west)	48*	34
Median tea smallholdings (ha)	0.5 (east), 0.2 (west)	0.35	0.46

Source: Upon request from author. Most figures are from producer country government's tea boards. Certification data is from *State of Sustainable Markets 2017* (Lernoud et al. 2017). *48 percent of households say tea is their main source of income.

3.3 Kenya

Although the Kenyan tea sector is the youngest in our sample, with the first bushes introduced just in 1903 by the colonial government, it has grown rapidly in the last century and set deep roots in the Kenyan economy. Before 1960, tea was grown in Kenya only by white colonial settlers and multinational corporations as a plantation crop. Product and process upgrades have since transformed the value chain. Process upgrades encouraged a move from plantation to smallholder tea farming to take advantage of cost savings and productivity enhancements in the latter. In the 1960s, the government formed the Kenyan Tea Development Agency (KTDA) as a government agency to promote smallholder tea farming. Early support for tea production was delivered through a special crops authority to promote productivity. The government also developed the tea VC infrastructure, for example through support to the Mombasa auction and basic road and electricity infrastructure. When overseas importers sought proof of compliance with importing country government standards, the Kenya Bureau of Standards began testing and certifying compliance with such standards. It also verifies compliance with a Kenyan code of practice through audits of factories and testing of the final product.

Later on, product upgrading from low-quality bulk to high-quality bulk export subchains took place, largely through certification to agricultural standards. Adoption of these schemes enhanced the quality of the leaf and improved production processes, but perhaps most importantly allowed Kenyan tea to access the high-quality bulk tea export subchain. As noted earlier, the high-quality bulk chain is superior on several fronts: tea can garner prices of US\$5/kg rather than the US\$2/kg predominant in the low-quality subchain, and it is less competitive and more stable than the low-quality subchain. In response to demand from major buyers, plantations and the KTDA encouraged certification to voluntary sustainability standards, such that today more than 80 percent of Kenyan tea production,

including tea from MNC-owned plantations and much of the smallholder sector, is certified to private sustainability standards—notably through a major partnership between Unilever, KTDA and the RA to promote RA certification amongst smallholders.

Certification was implemented alongside farmer training programmes. Farmer field schools (FFS) made farmers active field experimenters and provided a forum for in-depth learning about good agricultural techniques. FFS are small groups of farmers that meet for two hours sessions held twice a month with a factory facilitator to learn by doing through experiments, special topic sessions, group dynamic activities, field days and study tours, experiential learning, etc. Farmer field schools can be quite costly and labour-intensive for the organisation coordinating them, and there is limited scope for scaling them up to thousands of farmers. Larger-scale training of the trainers programmes have been used in Kenya as part of the KTDA-Unilever-Rainforest Alliance certification process (Waarts et al. 2012). In these programmes, government or factory experts train a handful of lead farmers, who then go on to train all the farmers supplying to the factory. Yet the passive nature of information transfer and learning in such schemes can inhibit their effectiveness in changing farm practice.

The tea sector provides a livelihood to approximately one tenth of the Kenyan population, with three million people working in the sector, including smallholder farmers and their families (FAO 2015, 18). It is the country's leading commodity export earner: indeed, the United Nations Food & Agriculture Organization calculates that tea exports cover the country's entire food import bill (FAO 2011 in Groosman 2011, 9). Today, just 40 percent of the country's tea is grown on plantations, many of which are owned by foreign multinational corporations, with the remainder grown by 600,000 smallholder farmers. Smallholder factories in Kenya are run by the Kenyan Tea Development Agency). All smallholder farmers in Kenya are members of the KTDA, which

represents them nationally and internationally and acts as the management agent for the 67 smallholder factories that are technically owned by their supplying farmer-shareholders (FAO 2015).

The 35 plantation-based processing firms source leaf solely from the plantation lands they own, which are worked by hired labour that lives on site. In this category are found both foreign-owned and domestic firms, each of which has its own business model and managerial style. Foreign-owned plantation-processing firms such as James Finlays operate as local producers of raw material for their MNC's value chain, exporting made tea which will be sold under the parent company's brand. On the other hand, domestic plantations tend to be family owned and have a broader portfolio of sales that includes bulk black CTC tea as well as black, green and packet value-added tea.

3.4 Sri Lanka

Since its inception as a colonial plantation crop in the 1850s, tea from Ceylon—known today as Sri Lanka—has played an important role in the economic development of the country. In the 1960s, the newly independent nation was the world's largest tea exporter, but from the 1970s through to the 1990s, its market share was eroded as other Asian and African countries gained a competitive edge. As the volume of tea on world markets increased, world prices plummeted, and with them went Sri Lankan export earnings. With relatively low productivity compared to other leading exporters, it was unable to compete on sheer volume alone. Instead, Sri Lanka retained its place as the world leader in tea through a focus on high-quality and branded tea exports.

Active government policy-making encouraged functional upgrading into processed tea products such as tea bags and packets (Ganewatta et al. 2005; see section 4.2 for more detail). Value was also added through product upgrading—including through farmer training, factory improvements and government labelling of top Sri Lankan tea with the Lion Logo brand—which moved much

of Sri Lankan tea exports to the top end of the high-quality bulk tea subchain. Sri Lanka has largely eschewed certification owing in part to the low demand for certification amongst its buyers. Instead, firms strive for certification to the Lion Logo as well as international private standards alongside taste quality criteria.

Sri Lankan black tea fetches a premium on world markets, making it the leader in the value of exports of black tea (Table 2). Indeed, tea is one of the country's main exports: In 2015, it accounted for 62 percent of agricultural export earnings and about 13 percent of total export earnings. Although it generates just two percent of GDP, the tea sector has retained its important role in the economic and social development of the country, supporting two million people who make up one tenth of the population. Contributing to this huge business is a 400,000-strong small-scale tea farming community: they grow 73 percent of the country's tea, with the remainder taken up by estates.

In Sri Lanka, processing factories are either supplied solely by the harvest from a plantation owned by the factory, by smallholder farmers in what is known as a “bought-leaf,” “outgrower” or “contract” setup, or by some mix of smallholder and plantation leaf. All processing firms in Sri Lanka are domestically owned, either solely by a local entrepreneur who takes a hands-on approach to management or as joint ventures with minority foreign ownership. Foreign (Indian) or domestic minority shareholders tend to be relatively passive in firm management, which is instead actively directed by the domestic owner-manager. While some of these firms simply process the tea and sell it, others have branched out into packaging, marketing, and exporting. The latter group has been at the vanguard of the move into value-added packaged tea exports. These exporters have used the value created by relationships of trust with direct buyers overseas to break away from the commodity trap and build more value into the product within Sri Lanka (Kasturiratne and Poole 2006). Teabags and retail packets exported from Sri Lanka include brands owned

by Sri Lankan firms, brands jointly owned and private labels or brands solely owned by foreign firms. In 2005, brands that were fully or partly Sri Lankan owned accounted for about 20 percent of bag and packet exports, and private labels accounted for the rest, suggesting that some Sri Lankan firms had upgraded into the packaging nodes of the chain, though not the marketing side (Ganewatta et al. 2005). Value-added packaged tea products accounted for some 60 percent of the country's tea exports in 2005 but brought their own policy challenges. High tariff rates in some importing countries have impeded the growth of packaged tea products, while import restrictions on blending and packaging inputs have been important (Ganewatta et al. 2005).

3.5 Nepal

Since its inception, as far back as 1863, tea production in this landlocked, least developed South Asian country has been closely tied to the fortunes of the Darjeeling tea gardens, which lie just hours away across the border in India. Unlike the extensive gardens that brought prosperity to the growers of the “champagne of teas” in India, the Nepali tea estates remained modest in number and reputation.

In 1976, smallholders began growing tea and have since continued to expand their share of production, accounting for 41 percent of tea output in 2016. Despite its propitious growing conditions and ambition, Nepal is a small player on world tea markets: with just 27,688 hectares planted to tea, it ranks 21st in world production and 22nd in export quantities. There are two distinct segments to the Nepali tea value chain: the CTC and orthodox segments have different geographical locations, production organisation, processing methods, and end markets. Three quarters of Nepali tea production is grown in the flat southern plains of Jhapa district and processed according to CTC methods. The remainder is grown in the mountainous north-eastern districts of Ilam, Panchthar, and Dhankuta and processed according to orthodox methods. Estates dominate the CTC sector, accounting for 65 percent of production. 40 percent

of Nepali CTC production goes to domestic markets, while the remainder is exported, with more than 90 percent of exports going to neighbouring India. In the orthodox segment, on the other hand, more than half the tea is grown by smallholder producers and virtually all of it is exported, to India but also to Russia, Germany, and the US.

Like many LDCs and LICs in the tea sector, Nepal has struggled to upgrade the quality and reputation of its tea exports. Tea factories have long sought alternative export destinations to reduce dependence on low-value exports to India, but after a shipment to Germany was rejected in the 1990s owing to higher-than-permitted pesticide residues, the country has had to work against a reputation of violating food safety standards. Both government actors and development agencies have recognised the orthodox tea value chain as having significant development potential and have initiated programmes to pursue upgrading in the orthodox segment of the GVC. Product upgrading has been pursued to move from low-quality bulk exports to India to the more lucrative speciality high-quality overseas export chain. Adoption of a domestic code of conduct, and more recently adoption of the organic standard, have improved farmer capacity and practices, served to bring production in line with international food safety standards, to signal compliance and facilitate access to overseas markets. Technical assistance accompanied the implementation of both schemes, mainly delivered via cooperatives that provided training sessions with non-governmental organisation (NGO) and factory support. Factories liaised with cooperatives that passed on information concerning rules as well as materials to farmers while providing a forum for cooperative members to learn from one another.

Although upgrading efforts have helped improve smallholder farming practices and diversify exports, it remains the case that infrastructure, quality and marketing are a challenge. The experience in Nepal has also underscored that financial incentives to implement new certification schemes are

crucial: if certification is not lucrative, co-ops have weak grounds on which to encourage adoption of new practices.

A few firms have also moved into value-added packaging and marketing, albeit in small quantities. Interestingly, smallholder Nepali tea farmers dissatisfied with prices offered by local factories have taken up a spontaneous

functional upgrading strategy by starting their own processing factories. There were at least 60 small-scale tea processing works in Nepal in 2017, many of which were operated by cooperatives, as well as three CTC and at least two large orthodox cooperative-operated factories. These cooperative-run factories either sell directly to overseas buyers or via the national Central Tea Cooperative Federation.

4. GOVERNMENT SUPPORT FOR THE TEA GLOBAL VALUE CHAIN

Kenya and Sri Lanka are world leaders in tea exports, yet they occupy very different competitive niches. The Kenyan value chain is focussed on bulk mid- to high-quality export of bulk CTC tea destined for MNC tea bags, while a diversified Sri Lankan chain includes both high-quality bulk exports and exports of value-added tea products. These cases are interesting because they highlight how different patterns of firm organisation, standard adoption and government policy-making can lead to different value chain profiles with unique sustainable development implications. These implications are particularly interesting for LDCs and LICs since they illuminate the implications of current policy choices. The Nepali tea value chain is typical of these countries in its high potential but current modest scale and reliance on exports of low-value, mainly CTC bulk exports alongside burgeoning sales of speciality certified orthodox tea for overseas export.

4.1 Tea Policies

Visioning exercises enable producing countries to survey the current status of a strategic commodity, build consensus amongst government, industry and the farming sector on what that commodity's chain should look like some ten to twenty years in the future, and begin building a strategy to achieve that vision. The process of building a vision document helps set the sector on an upgrading path and helps mobilise resources towards changes that will improve country competitiveness. Once adopted, government policies can help make the vision a reality, including through tools such as taxes, subsidies, and marketing assistance.

Sri Lanka is an excellent example of how active government policy successfully fostered functional upgrading. In the 1980s and 1990s, government incentives encouraged processing inside the country, built the Sri Lankan tea brand, and prevented poor-quality exports, all of which were crucial in building the country's competitiveness in packaged and high-quality

exports. The process began in the late 1970s when the Ministry of Trade recognised the potentially devastating implications of the drop in bulk tea prices, trends in consumer demand, and the economic potential of value-added tea exports. In 1979, the Ministry submitted a cabinet paper to the federal government proposing a focus on value addition in the tea sector. By 1980, a federal tea policy had been adopted to promote value adding of tea by producing teabags and retail packets for overseas markets with a view to increasing financial returns, creating new employment opportunities, and developing associated industrial and service sectors in the country (Ganewatta 2002).

The policy package included several components. Perhaps most importantly, in the 1980s, the Export Development Board of Sri Lanka introduced the Custom Duty Rebate Scheme, in which it repaid the tea export tax to exporters moving into higher value-added tea products. Around the same time, the board initiated an Export Expansion Grant Scheme under which grants were provided to undertake export expansion programmes (Ganewatta 2002). In 1981, the government adopted a tea import policy that allowed imports of CTC and filler-grade teas for re-export in order to address the limited availability of different types of tea required for blending (UNCTAD 1982 in Ganewatta 2002, 8). In the late 1980s, a domestic auction centre was set up and, in the early 1990s, the government privatised formerly government-owned tea plantations. Although most were purchased by Sri Lankan firms, some received foreign direct investment from Tata India (Talbot 2002).

The Tea Board of Sri Lanka was established in 1991 and quickly moved to support exporters' upgrading efforts by giving tax-free incentives based on the exporters' previous year's incremental increase in the export value of its teabags and tea packets. Exporters of teabags and retail packets were paid 40 percent and 20 percent, respectively, of the value of the incremental growth over the previous year

under this scheme. Furthermore, it paid part of the interest on loans for capital investment in tea-bagging machines (Ganewatta et al. 2005). Throughout the 1990s, stakeholders continued to reiterate the consensus around a focus on value addition rather than low-quality bulk tea exports (Central Bank of Sri Lanka 1999, Fonseka 1997, Sri Lanka Government 1995). In 1999, the Tea Promotion Bureau was established within the Tea Board to promote Sri Lankan tea in export markets. It undertook promotional activities to enhance demand for value-added tea products from Sri Lanka in major markets. It provided matching grants of up to 50 percent of expenses for the promotion of brands partly or solely owned by Sri Lankan exporters, with priority being given to high-value speciality teas, teabags and retail packets. Finally, throughout this period macroeconomic policy facilitated a steady depreciation of the currency to match inflation differentials between Sri Lanka and its main trading partners, which prevented the real exchange rate overvaluation that plagued other commodity exporters (Ganewatta et al. 2005). The Board also developed a “Lion Logo” to facilitate marketing of Sri Lankan value-added teas overseas (see Section 3.4).

While the early subsidies and incentives for value-added production are no longer in operation today, the Sri Lankan government continues to facilitate tea research, promote Sri Lankan tea overseas and promote upgrading amongst smallholders. To improve productivity amongst the smallholders who supply the bulk of the country’s green tea leaf, in 2016 it approved a fertiliser subsidy for tea farmers with cultivated land of less than two hectares, and it offers a modest subsidy for replacing old tea bushes with new ones. As a result of these policies, Sri Lankan firms have built their competitiveness in value-added and high-quality tea exports, with over 50 percent of exports in 2016 in value-added packaged form.

In contrast, less than 15 percent of Kenyan tea exports are packaged and its bulk exports are lower in quality than those of Sri Lanka, fetching a lower price. While Sri Lanka focussed on taxes and subsidies to facilitate a particular

type of industry, Kenyan policy focussed on infrastructure for selling (to port, auction, etc.). Although the Kenyan government has supported the ongoing operation of the tea value chain, including through infrastructure and certification initiatives, it lacks the unifying policy framework and national policy leadership that distinguishes the Sri Lankan tea sector. In fact, a 2017 capacity needs assessment of the tea value chain in Kenya conducted by the Kenya Institute for Public Policy Research and Analysis (KIPPRA) and the African Capacity Building Foundation (ACBF) found that the delay in the adoption of a national agricultural policy and the absence of a tea policy was a crucial factor impeding the sustainable development of the subsector in that country.

The lack of vision and unifying strategy is also an impediment to success in Nepal, albeit for a different reason. There, a National Tea Policy was announced in 2000, but the activities envisaged to achieve its goals have yet to be implemented. A 2005 consultant’s report setting out a vision document for the sector for 2020 has similarly had little effect. In practice, the operational isolation of government, industry, cooperative and labour organisations in the tea sector has led to distinct strategies being followed by each. A National Export Sector Strategy in Tea, developed with the assistance of the International Trade Centre (ITC) in 2017, could help pave the way to a unifying strategy across the value chain.

Finally, in both Kenya and Nepal, taxes and subsidies are not always used strategically by policy-makers. For example, Kenya has a patchwork set of national ad valorem levies on warehousing, county taxes and delayed value-added tax (VAT) refunds that is in need of harmonisation (KIPPRA 2017). However, it does provide a subsidy for new tea bushes in the hopes that the resulting long-term increase in productivity in the new fields will enable farmers to invest in other crops or livelihood streams that will diversify income and reduce household vulnerability. In Nepal, basic infrastructure and political instability pose a

major challenge for value chain development. Electricity outages and poor-quality roads worsen the quality of made tea, while national strikes and border problems with India make it difficult to physically send tea overseas. These hamper the sector's ability to build its reputation as a dependable source of high-quality tea.

4.2 Governance Organisations

Governments, industry, farmers and labourers have each organised themselves into tea governance bodies. Within government, tea is often the responsibility of a dedicated tea board or office of the federal agricultural authority. In Kenya, where tea falls under the legal authority of the Agriculture and Food Act (2013, Amendment 2016), the Tea Directorate of the Agriculture Food Authority has responsibility for regulation and control of tea cultivation, processing and trade; investigation and research; promotion and marketing of Kenya tea; policy advice; and information dissemination. The Tea Directorate also licenses tea manufacturing factories and regulates and controls the processing method, but an assessment of its capacity and operational framework found it lacking on several fronts (KIPPRA 2017). A 1976 law established the Sri Lanka Tea Board as a stand-alone government institution responsible for regulations concerning production, cultivation and replanting, the establishment and operation of tea factories and the conduct of the Colombo tea auctions; it appears to be quite effective at promoting and organising the interests of the sector.⁴ Finally, the NTCDB is mandated by the National Tea and Coffee Development Board Act 1993 to regulate the tea industry of Nepal via policy formulation and technical support to tea growers and

processors, but stakeholders have criticised its high rates of staff turnover and lack of capacity (Mohan 2013).⁵ Tea value chain analysts appear to concur that strong, independent tea boards that are well-resourced, with long-term staff and operating under a clear legal and policy direction, are more successful (KIPPRA 2017, ITC 2017).

All three case study governments conduct research to support the sector. Kenya's Tea Research Institute (TRI) focuses on increasing productivity, including through research and development in breeding which has yielded 51 tea clones that have been tested for quality, yield, disease and pest resistance. Sri Lanka's Tea Research Institute, which is the largest in the world, undertakes breeding work along with research into alternative energy sources, input application, mechanisation, value addition and marketing. Its research focus on field level outreach, plucking, inputs, harvest management, transport and marketing reflects a broad concern with quality and marketing, while Kenyan research focuses on productivity, via the bush and soil. Nepali tea research is in its infancy, with the Nepal Agricultural Research Council (NARC) conducting some research into the development of tea varieties, energy-efficient driers and agronomic practices (ITC 2017, 26, 45). In all three countries other government departments, including ministries of environment and trade, have an interest in the tea value chain and coordinate with the tea boards to greater or lesser extent (see next section).

In each country, strong industry associations excel in voicing the interests of exporters, estates and processing factories. In Kenya, the East Africa Tea Trade Association (EATTA) facilitates the Mombasa Tea auction and

4 Its statutory responsibilities also include maintenance of tea quality standards, issuing packaging guidelines, warehousing requirements, etc., framed both under the Sri Lanka Tea Board Law and the Tea Control Act No. 51 of 1957 and the Tea (Tax and Control of Exports) Act No. 16 of 1959. The country's Tea Small Holdings Development Authority (TSHDA) focuses on technical assistance to tea smallholders.

5 The NTCDB's regional offices, among other functions, raise tea bushes from grafting or seed and sell them at a low price to farmers. The head office coordinates participation in the International Tea Committee, publishes an annual report summarising statistics and analysis of the sector, organises representation at international tea fairs and promotes Nepali tea.

supports producers, buyers, and packers in the tea value chain, while the Kenya Tea Growers Association (KTGA) represents the country's tea estates (FAO 2015). The Tea Exporters Association of Sri Lanka was established to promote the interests of Sri Lankan tea exporting firms, while the Planter's Association of Ceylon promotes the interests of tea estate owners. Nepal's HOTPA (the Himalayan Orthodox Tea Producers' Association) was created in 1998 to represent and coordinate the interests of the orthodox tea factories, and CTC tea factories are represented by the Nepal Tea Producers' Association (NTPA).

Each country has a national body to represent farmers. In Kenya, farmers are organised in cooperatives and are represented nationally by the KTDA. In Sri Lanka, local tea smallholder societies have regional offices and a national federation that liaises with the TSHDA. In Nepal, most farmers are members of strong tea farmers' cooperatives that are united in regional coalitions and by the national Central Tea Cooperative Federation. The CTCF strengthens the institutional capabilities of its members, facilitates representation, lobbying, and advocacy at a national level, and promotes marketing and sustainability. Finally, labourers on plantations are represented by their unions, while labourers on smallholdings are rarely members of collective organisations.

4.3 Policy Coherence

Do all the different actors in the tea value chain pursue their agendas on their own, or is there communication and collaboration amongst them? When different government agencies, industry, farmer and union bodies each make their own policy independently, the result is policy incoherence: projects that duplicate one another, or move the value chain in different directions. When there is policy incoherence, chain actors are not aware of and do not coordinate with each other.

On the other hand, joined-up policy making in the tea sector brings together different government bodies, industry, farmers, labour, NGOs, and development agencies to form

coherent policy and plan mutually reinforcing projects that create synergies towards achieving shared objectives. This entails horizontal coherence including coordination, collaboration and communication across national government bodies, and between government, industry and farming representatives. It also includes vertical coherence between local, regional and national governments, and between local farmers' cooperatives, regional farmers groups and their national representation. Rather than each organisation being compartmentalised in its own corner, countries with coherent policy frameworks have unions, cooperatives and governments that are aware of each other's activities and support one another.

When these bodies are in competition, or ignorant of each other's objectives and activities, we see upgrading which fails on social, environmental or economic grounds. Policy coherence between government ministries within developing countries, and between government, private sector bodies and farmers/labourer representatives, has been a trademark of successful initiatives. In Kenya, policy coordination between KTDA, Unilever, the government, and the Rainforest Alliance was crucial to the successful training and certification of thousands of small-scale farmers for supplying Unilever (see Section 3.3). The Tea Directorate holds regular meetings every quarter with sector stakeholders where issues and concerns are discussed and addressed. Notwithstanding this history and organisational setup, there appears to be a culture of mistrust amongst value chain actors, epitomised in accusations and criticisms amongst stakeholders. For example, critics have claimed that the Mombasa auction master colludes with buyers to reduce prices, while stakeholders have criticised the quality of services, management fee and governance structure of KTDA (Gitonga 2016). In Sri Lanka, the Tea Board holds regular multi-stakeholder meetings with industry and farmer representatives. In Nepal, although there was remarkable policy coordination in the conception and implementation of the code of conduct, today there is very little communication and

collaboration between government, industry, farmer, and development groups, and indeed between the CTC and orthodox segments of the chain. This policy incoherence has crippled the capacity of the value chain to move forward. As a case in point, government and industry have each created their own Nepali tea logo and proceeded to promote it overseas, which leads to confusion and lack of clarity in the branding effort. In Kenya, low levels of trust amongst value chain actors may prevent constructive policy discussions to map out the future path of the sector, while in Nepal the simple lack of interaction amongst value chain actors leads to policy duplication and incoherence.

This analysis of tea value chain history shows that the chances of success in tea value chain upgrading are greatly enhanced by the operation of regular, constructive and trust-based multi-stakeholder meetings. An inclusive, consensus-based mode of decision-making in multi-stakeholder forums depends upon a culture of mutual trust and at the same time fosters it. A collaborative, cohesive policy framework builds a shared vision and divides up the different projects necessary to achieve it amongst actors with different strengths. This process builds up a constituency around the upgrading strategy, increases its resourcing and shares the implementation burden.

4.4 Standards

Although all three countries have met basic domestic food safety standards, they have followed very different standards strategies. Nepal focussed on meeting importing-country food safety standards and adopted a domestic code of conduct, but owing to low importer interest in that scheme, many producers shifted to organic certification in an effort to demonstrate its low chemical residues and high quality to overseas importers (Mohan 2013). Kenya met importers' standards and proceeded to invest substantially in certification to voluntary sustainability standards: indeed, statistics indicate that more than 80 percent of its exports are certified (Lernoud et al. 2017). The Sri Lankan Tea Board has focussed more on meeting international safety standards:

after meeting importers' public standards, it concentrated on ensuring that all exporting tea companies comply with ISO 3720 standards, as well as other relevant international standards including HACCP, GLOBALGAP, Codex Alimentarius regulations and methyl bromide reduction. Beyond that, it certifies value-added exports of retail-ready tea that are comprised of 100 percent Sri Lankan produce and meet the stringent quality criteria of its official Lion Logo, which has international brand recognition. While Kenya and Sri Lanka have treaties with selected importing countries for mutual recognition of domestic testing of compliance with importers' standards, Nepal does not.

In making sense of the three different patterns of standards compliance in the case studies, it is important to consider why firms decide to adopt the standards they do (Kaplinsky and Morris 2017, Ruben and Zuniga 2011, Henson and Humphrey 2010). Developing country factories adopt standards most obviously because their current buyers require them. This may include public standards (including sanitary and phytosanitary and technical barriers to trade rules of the importing government) as well as the lead firm's private standard or even the buyer's preferred VSS. A firm may also wish to supply new buyers and adopt the standards that the new buyers prefer. The adoption of the new standard and the access it gives to the new buyer may enable processing firms to upgrade production to a GVC subchain with higher entry barriers, higher prices, and more secure sales. Farmers adopt basic standards because their buyers require them and may opt into voluntary standards both because of the promise of higher prices for certified produce and because they think certification may enable them to access risk insurance (Mohan 2017).

Standards also give rise to several opportunities and challenges for sustainable development in GVCs. Different end markets require different standards, resulting in duplication in standards adoption: for example, one Nepali exporter had five different certifications for five different export markets. But there are also complementarities between standards:

for example, fair trade certification is often added on top of organic to access even more lucrative speciality markets and achieve even more sustainability objectives. As such, it can be useful to sequence standards adoption, for example starting with a basic public standard, moving to a private international and then a private VSS. Standards can be chosen so as to match downstream market demand for a particular certification with an upstream production weakness which needs to be addressed. In this sense, standards can be used to leverage upstream upgrading, including through finance and technical assistance, as with the organic standard which can earn a price premium and force reductions in smallholder chemical use.

With this in mind, five distinct stages or strategies of standards adoption for trade can be identified amongst tea exporting countries. Since producers have to comply with basic public safety standards of the export destination government, most firms start with these first. As a first option, many producer countries initially export to another developing or emerging country, whose standards may

be less stringent. A second strategy entails meeting basic public international standards, as enshrined for example in Codex Alimentarius rules and in the legislation of key developed importing countries such as the EU and US. A third strategy, which may seem advantageous for small countries struggling to reduce pesticide use among smallholders, entails signalling full compliance with food safety rules, for example through adoption of organic standards. While organic certification can lead to a price premium, it does entail high costs and low productivity, and a limited market, so this could be less lucrative than anticipated (Mohan 2013, 2017). A fourth approach focuses on building domestic quality beyond basic food standards but not to the level of top VSS, including using domestic labels/standards such as Sri Lanka's Lion Logo or India's TrustTea. In a small country, there is a danger that low brand recognition by buyers, and the difficulty of enforcing an audit system, can hamper the feasibility of such a scheme. Finally, a fifth step entails certification, if export markets demand it, to voluntary sustainability standards such as UTZ, fair trade or RA that can facilitate market access.

5. SDG IMPLICATIONS IN THE TEA VALUE CHAINS

Policies for upgrading in the tea value chain affect not only the competitiveness of exports but also real sustainable development achievements on the ground. Policy triggers backward and forward linkages that stimulate the economy and influences other aspects of sustainable development, including sanitation, gender equality and biodiversity. Indeed, the particular set of policies and upgrading strategies adopted in each of the case study countries has led to a distinctive pattern of achievements of the sustainable development goals (SDGs).

5.1 Poverty-Related SDGs (SDG 1, 2, 3, 4, 6, 7)

In all three case study countries, labourers in the plantation sector live on site through labour contracts that are handed down from generation to generation. These labourers are often unionised—unlike their peers who work on smallholder farms—and benefit from regular renegotiation of pay and conditions. Product upgrading on plantations can have important implications for poverty reduction. Fair trade certification on Kenyan plantations has facilitated access to new markets, while the fair trade premium can improve the returns to labour, thereby reducing poverty, improving nutrition and providing decent work. Owners of conventional tea plantations in Sri Lanka have invested in improved housing, education, child care, and health care, contributing to achieving poverty-related SDGs. Plantation labour conditions vary from site to site and country to country, and some estates provide hospitals, education, child care and pensions. However, across this subsector, there are reports of malnutrition, substandard antiquated housing, low levels of education of children, poor health care, sexual harassment, violence, poor pay, inadequate sanitation and poverty (Chandrabose and Sivapragasam 2015, Bergman et al. 2016, Kenya Human Rights Commission 2008, Van de Wal 2008).

These factors, along with the production-related issues noted in section 3.2, have combined to provoke a move towards

smallholder farming. Smallholders seem to perform much better than plantation labour on all measures of housing, education and health care. Indeed, smallholder tea farmers tend to own their own homes, invest significantly in their children's education, and access health care. Despite these successes in relation to key social development measures, some smallholder tea farmers earn just enough income to pull them above the poverty line (FAO IGT 2016a, 7). Data on the net household income from tea amongst smallholders in our three case study countries is scarce but can be analysed using the US\$2.50/day international individual poverty line as a measure. When applied for a full year for the household, assuming a modest household size of three adult equivalents (including two adults and two children), this would put the international household poverty line at US\$2,737 a year. The FAO reports, based on macro data, that the annual earnings from tea per small-scale farming household in Kenya in 2014 were US\$2,380 (FAO IGT 2016a, 8) which—combined with the fact that tea farmers there report 8-50 percent of their income comes from tea (FAO 2015)—would give an annual household income range of US\$4,750-29,750, which suggests that Kenyan smallholder tea households are well above that international poverty line. In Sri Lanka, the FAO reports annual earnings from tea per small-scale farming household of US\$1,451 (FAO IGT 2016a, 8). We know that half of smallholders there report that tea is their main source of income (Cyril 2014), on which basis we can conservatively estimate that tea accounts for 50 percent of household income on average, which suggests a household income of US\$2,902, which once again is above the international poverty line. In Nepal, a 2016 survey of 270 small-scale tea farming households supplying to orthodox factories found that they earned on average US\$610 annually from tea and that tea made up, on average, 34 percent of their household income (Mohan 2017); this suggests an annual household income of US\$1,800, which would put them below the international poverty line.

While these rough calculations based on averages give a sense of levels of farmer poverty in the three case study countries, microeconomic survey data suggests that the reality is more complex and that there may be significant variation in poverty status amongst tea supplying households. For example, a 2013 microeconomic survey of 640 small-scale tea farming households in Kenya supplying to a KTDA factory for Unilever found that 44 percent were below the US\$2.50/day poverty line, 60 percent had access to a protected well or piped water to the house and 20 percent experienced food insecurity (SFL 2014). In Sri Lanka, research shows that 86 percent of smallholders possess permanent housing, with the rest in semi-permanent or temporary housing (Cyril 2014), and all have access to water, electricity, and sanitation (Perera 2014).⁶ Quantitative and qualitative research in rural Nepal suggests that smallholder tea households are financially comfortable by Nepali standards, including because of low local prices, own supply of food, and because of other sources of income (including remittances from overseas emigrants) (Mohan 2013, 2016, 2017). Virtually all tea farming households there have an outdoor latrine and access to piped water. Clearly, further research is needed to generate additional data to fully assess and understand tea smallholder poverty.

There is little data on labour hired by smallholders. Although in Sri Lanka smallholders pluck their own tea, in Kenya and Nepal smallholders hire labourers. In Kenya, tea labourers are migrants, while in Nepal they are landless. On Kenyan smallholder farms roughly 80 percent of the plucking work is done by hired roving migrant labourers, who find their own place to stay and pluck at a different location each day. The remainder of the plucking work, as well as fertiliser and pesticide application and pruning, is done by the farm family. In Nepal, landless labourers employed by smallholder farms

are often dalits or lower caste, do not have any benefits or social security, and many are concerned for their welfare, and that of their children, upon retirement. Their housing is often temporary and they have poor access to water, sanitation and education. It is clear that labourers who work on smallholder plots earn less than their plantation peers, and face insecurity concerning off-season income and pensions. However, in many countries labour for tea plucking is so scarce that tea labourers are able to exercise some market power. In the Nepali orthodox sector labour is so scarce that labourers can decide when or if they will work a farmer's land, how they are hired, and negotiate supplementary benefits such as loans, snacks, and promises of future work.⁷ In sum, labourers on plantations have greater job security and may earn more, but labourers on smallholder plots tend to experience less harassment and exercise more control over their working conditions.

5.2 Gender (SDG 5)

Women play an important role in tea production around the world. In virtually all tea producing countries, however, their participation is limited by social norms that assign specific tasks in the value chain to them and exclude them from others. Table 4 gives an indication of the gendered division of labour in the case study countries. Although this is for small-scale farms, the division of tasks is similar on plantations, and in fact is remarkably consistent across the three countries and around the world. Men are predominantly responsible for planting and pruning the tea bushes, fertiliser and pesticide application and liaising with the relevant organisations, but it is women who play the lead role in the actual management and cultivation of the tea garden. Women are responsible for plucking the tea and bringing it in a timely manner to the processing factory. Up to 80 percent of the quality of the made tea depends on the quality of the plucking and

6 Smallholder returns from tea farming in Sri Lanka are supported by a government regulation which requires factories to pay smallholders a per-kg price that accounts for 68 percent of the price the factory receives for the tea it sells.

7 Interestingly, despite the scarcity of labour, the wage pay level and its modality (per kg or per day) is inflexible in each village because of rigid social norms (Mohan 2016).

transportation (informant interview, Nepal, 2010). As demonstrated in Table 4, women play a key role in these activities. However, training and upgrading programmes in the sector have

largely excluded women, thereby preventing information on field techniques from getting to those who can implement them to upgrade the product.

Table 4: Gender roles on small-scale tea farms in Kenya, Sri Lanka and Nepal

	Kenya	Sri Lanka	Nepal
Land preparation and planting	mostly male	Not available (n/a)	mostly male
Pruning	male	male	male
Fertiliser and pesticide application	mostly male	n/a	mostly male
Plucking	female	female	female
Tea transportation	mostly female	n/a	mostly female
Factory/cooperative liaison	mostly male	n/a	mostly male

Source: Kibere et al. 2013, Makone et al. 2017, Daniel 1993, Mohan 2013, 2014, 2016.

The gendered division of labour extends downstream in the tea value chain, where—at the factory—women maintain the supply of leaf amongst the processing machines and do the sorting, while men are in charge of machine repair and packing. Factory owners, government employees, export firm workers, and indeed buyers and MNC employees, tend to be male.

The SDG targets around gender equality are challenged in tea value chains, particularly on tea estates where women often face gender-based discrimination as well as sexual harassment and violence (Kenya Human Rights Commission 2008, Van de Wal 2008). Women on estates often face double discrimination: as women, and as members of particular tribal or ethnic groups. Discrimination can entail lower wages, lack of access to jobs, and ill-treatment in official and business transactions. Furthermore, land in both Kenya and Nepal is often held in men's names, reducing women's control over farming decisions and finances. Approximately 54 percent of Kenyan tea farmers registered in one case study factory are male (Makone et al. 2017). Approximately 60 percent and 70 percent of tea farming households are male-headed in Sri Lanka (Perera 2014) and Nepal (Mohan 2017) respectively. Of the 276 small-scale tea farming households in Kenya surveyed by Makone et al. (2017), 28 percent had only men collecting the monthly payments from the factory, 20 percent had women

collecting the payments and in 51 percent of households both women and men collected the payments. The study further showed that men were more likely to control access to finance and fertilisers.

Women also face specific challenges as a result of their control over labour. They are often responsible for coordinating the hiring of labour for the family farm, in addition to other tasks within the household. The extra time it takes to find labourers in the face of labour shortages can increase their work and stress burden. Furthermore, female-headed households have to hire labour to perform male-gendered pesticide and pruning tasks, which adds an extra cost burden.

It should be noted that gender inequalities stem from deeply entrenched norms in the countries concerned, and not from the tea value chains per se. Nonetheless, upgrading in tea value chains provides opportunities to mitigate gender-based discrimination and empower women and girls. In Sri Lanka, for example, the adoption of UTZ certification on estates has led to gender training, an improved recognition of women's contribution to production, promotion of women to supervisor positions, increased voice for women in the household and a reported reduction in gender-based violence (Haagsma et al 2016). Chain actors have also collaborated to address gender issues for their own sake. For example,

In Kenya, a collaboration between IDH - the Sustainable Trade Initiative, tea companies and other stakeholders aims to significantly reduce the occurrence of gender-based violence in the Kenyan tea industry by 2020, including through a common training manual to address this. Mechanised pluckers have been introduced on a few estates in order to reduce costs and address labour shortages, but such process upgrading could have an adverse effect on women's employment in the sector as (female) plucking jobs are replaced by fewer (male) machine operators. Product upgrading that requires coordination, increases labour time or changes field practices (e.g. local fabrication of organic pesticides) can increase women's work burden unless mitigating efforts are made.

Gender equality is instrumental in the economic sustainability of tea chains since female labour is responsible for high-quality high-productivity tea plucking. The quality of the tea leaf that women workers produce will determine the development dividend of upgrading policies. As such, women's work to upgrade the quality of tea production, including in plucking and farm management, must be supported. Inclusive upgrading policies must make particular efforts to extend skills training and outreach opportunities to them. The gender implications of new practices should be considered, especially given the gendered division of labour and multiple demands on women's time. Opportunities should be seized to build public awareness around gender equality and establish recourse against gender-based violence in the tea value chain. Finally, including women in government, industry and cooperatives as leaders would take advantage of their expertise and capacity to act as agents of value chain transformation.

5.3 Inclusive Economic Transformation (SDGs 8, 9, 10, 16)

Value chain upgrading in the tea sector has helped achieve sustained, inclusive and sustainable economic growth and has strengthened institutions.

Policies that encouraged process upgrading lower costs, improved productivity and boosted efficiency. In Nepal, a subsidy for part of the price of new processing machines has improved productivity and sales, which in turn has led to further investments and growth. Higher wages and more jobs have stimulated consumption linkages. If the process upgrading entails a move to increase local sourcing of inputs, this triggers backward linkages as firms buy from local packaging and service firms. In the tea sector many of the inputs beyond the tea leaf itself—machines, packages and the like—are imported. However, in Nepal, process improvements at orthodox factories require the work of skilled electricians, and over time local people (or immigrants) are building or bringing those skills, in a process of demand-driven improvements in local capacity. This in turn increases the human capital available in the region, which can stimulate future growth.

Policies that increase productivity enable value chain actors to increase the returns they earn from their activities. In Kenya and Sri Lanka, publicly funded research into new tea bush varieties, and policies that provide subsidies for the replacement of old tea bushes with the new ones, are improving the productivity of farming and freeing up land (and time) for other income-generating activities. Policies that made the smallholder sector more attractive—such as Sri Lankan policies that ensured a fair tea price for smallholders, increased the wage on plantations and privatised management (Herath and Weersink 2009)—encouraged a shift from plantation to smallholder farming, which reduced costs in the sector and increased the productivity of land. In all three countries, agricultural extension programmes already train smallholders and improve productivity. Additional policies to improve the availability of labour would help to keep costs down, improve the efficiency of production and address a key constraint on growth in the sector.

Policies that encouraged product upgrading have facilitated a shift from low-value to higher-

value subchains. A Kenyan policy requiring compliance with a domestic code of conduct, and Sri Lankan Tea Board auditing of exporters to ISO 3720 standards, improved the quality of tea exports and facilitated access to high-quality bulk export subchains. In all three countries, the government is active in promoting its tea at overseas tea fairs, helping local firms access new, higher-quality export segments. These types of programmes improve the country's reputation for quality, in turn increasing competitiveness on world markets and the price received by producers. This improved competitiveness encourages the sector to grow and include more people. By augmenting the returns to the tea sector, the income of chain actors increases, stimulating consumption linkages.

Certification schemes, especially in the processing sector, have helped achieve the goal of sustainable industrialisation (SDG 9) insofar as they assist factories in accessing a price premium while meeting social and environmental objectives. Certification encouraged access to more lucrative segments of the global value chain, as when the KTDA partnered with Unilever and Rainforest Alliance to improve smallholder tea quality, certify to RA standards and supply to Unilever. In Nepal, product upgrading using the organic scheme has facilitated access to the overseas speciality tea markets.

Increased returns from higher-value subchains have also stimulated fiscal linkages. In Sri Lanka, the historic development of the tea export sector led to demand-led improvements in infrastructure: because producers needed to reduce the time it took to bring leaf to factories to improve quality, and to reduce the time it took to ship made tea, investments were made in road and train infrastructure. In Nepal today, similar demands to improve the road and electricity network could encourage future investments in resilient infrastructure that would be particularly helpful for development, notably in rural mountainous areas. However, in all three countries there remains scope for upgrading product quality to improve access to higher-value parts of the value chain. This is

particularly the case in Nepal, where exports of low-value CTC bulk tea to India continue to dominate production. In Kenya, policies to foster technology, knowledge and exports of orthodox tea would help move the country away from its focus on bulk black CTC exports, and towards the speciality high-value tea value chain segment.

Policies that promote functional upgrading encourage chain actors to take up activities in higher-value downstream nodes of the tea value chain, which increases returns while stimulating linkages throughout the economy. Functional upgrading in Sri Lanka encouraged factory owners to move into blending, packaging and sale of value-added tea. Tea packaging and marketing stimulated forward linkages through the development of paper and packaging businesses and of agri-food marketing expertise.

More generally, functional upgrading can also be a strategy for disadvantaged actors to empower themselves: take, for example, female labourers in Nepal who have bought plots of land and become smallholder farmers, or smallholder farmers who start up their own processing works. These examples make clear that functional upgrading is a strategy of economic empowerment which, if armed with supportive policies, can succeed in improving livelihoods and triggering economic growth.

Value chain upgrading can teach firms how to change: they “learn how to learn,” seeing each new problem as an opportunity to extend their agroecological, marketing and organisation techniques. Policies that reduce the vulnerability of chain actors to volatility and risk—for example, to diversify export markets and products in Nepal and Kenya, or to diversify occupations on Sri Lankan farms—enhance the long-term sustainability of the sector. However, whether a given upgrading strategy encourages decent work, reduces inequality, and promotes inclusiveness depends very much on the local institutions and the case at hand (Mohan 2016), as the gender discussion above suggests.

5.4 Environment (SDG 12, 13, 15)

Early research pointed out that the clearing of land for tea planting could be associated with deforestation, loss of biodiversity, soil erosion, and changed water flows (Clay 2004). The ongoing production of tea affects the environment primarily through agrochemical and energy use. Policies to reduce excess agrochemical use by smallholders, including by the TSHDA in Sri Lanka, UTZ in Sri Lanka and NARC in Nepal, can reduce water pollution and emissions from agrochemical production, while reducing farmer costs. The adoption of organic and biodynamic practices promotes biodiversity, for example by encouraging an insect that enhances the taste of the tea⁸, and also reduce land degradation by enriching soil biodiversity.

The most severe environmental impacts from tea production come from deforestation. The tea factories in all three countries use trees as fuelwood for processing green leaf into black tea. In Kenya, for example, each factory uses up to 30,000 trees per year, and that number can be higher in factories using more antiquated machines (Macharia 2015, 263). In Nepal, while estates often used branches and pruned material from trees on their property, landless labourers, tribal groups and other marginalised populations supplement their income by cutting down trees and selling the timber. Deforestation has devastating impacts on biodiversity and ecosystem functions in these hilly areas, encouraging landslides and affecting weather. The burning of wood fuel, as well as the diesel and coal that are used as alternatives, also affects the carbon footprint of tea.

An in-depth study into the carbon footprint of tea farming in Kenya (Azapagic et al. 2015) concluded that tea cultivation and processing contribute just 10 percent of the total global warming potential (GWP) of a cup of tea. The global warming potential of the life cycle of tea from Kenyan smallholders, from bush to brew, is estimated at 12.45kg CO₂ equivalent per kg dry tea. The study estimates that the farming and processing stages of the tea value chain in Kenya have a global warming potential of 1.42kg CO₂ equivalent per kg dry tea (Azapagic et al. 2015, 74). The global warming potential from the farming and processing stages of the life cycle of tea from Nepali orthodox tea smallholders has been estimated at 4.06kg CO₂ equivalent per kg dry tea (Nepal 2016). On the production side of the value chain, greenhouse gasses come largely from energy use in the factory, though the clearing of new land and use of agrochemicals are also a factor. Several initiatives are currently underway in Kenya to reduce fuelwood use, including by replacing it with other sources of biomass (e.g. corn husks) and investments in small hydropower stations. Nepali factory owners have been investigating win-win technological opportunities that would replace old equipment with new energy-efficient machines that would lower energy costs and reduce the greenhouse gas footprint of tea. Unfortunately, there is little information available on the carbon footprint of Sri Lankan tea nor mitigation initiatives. In all three countries, mounting evidence of climatic changes and their impact on current and future tea production have sparked research into and planning for adaptation strategies (see FAO IGC 2016b on Sri Lanka and Kenya; FAO 2015 on Kenya; Nepal 2016 and ITC 2017, 60 on Nepal).

⁸ Commonly known as the leafhopper, this bug inhabits pesticide-free tea fields. It takes small bites of the tea leaves and in so doing imparts a distinctive, delicious flavour to the final tea drink made from those leaves.

6. CHALLENGES AND OPPORTUNITIES

Tea value chains in Kenya, Sri Lanka and Nepal have faced eight main challenges that the governments there and in other producing countries need to address to make their tea export sector more internationally competitive and to improve its developmental outcomes.

1. **Firms and analysts have identified the lack of a shared vision amongst fragmented chain actors as an important constraint on tea value chain development.** Poor coordination amongst chain actors, and amongst government departments, has coincided with low capacity amongst the government body tasked with regulating the sector. Poor resourcing of the plans and programmes that do exist, and duplication amongst plans and programmes that operate independently, further weakens the policy framework.
2. **A second challenge is to increase the quality of tea production and the quality reputation of the country.** Small-scale farmers have assumed a majority of the tea growing responsibilities in producing countries at the same time as export markets have become increasingly demanding on quality. It is difficult for tea processing factories and exporters to pass on quality requirements—whether they pertain to pesticide use or plucking techniques—to hundreds of small-scale, remote and often illiterate farming families. Outreach tools, organisational infrastructure and business models to support the communication of product requirements and incentivise quality production amongst smallholder tea farmers are urgently needed. Even once quality production methods are taken up by smallholders, this has to be translated into a reputation for high quality in global tea markets. This requires, amongst other things, policies that ensure that the odd shipment that contravenes international food safety rules does not get exported and that the country's quality is demonstrated to buyers at international trade fairs.
3. **Poor infrastructure, logistics and customs reduce the quality and efficiency of value chain exports.** In many producing countries, poor roads prevent tea from getting from the field to the factory quickly. Inconsistent electricity damages the quality of made tea. Political instability can suspend the industry for weeks and months on end, with devastating impacts on the bottom line, market share, and reputation. The cost and time entailed in bringing product from factory to the port can be onerous, including because of poor road and train infrastructure, lengthy food safety compliance testing procedures, and customs procedures. These lead to high trading costs and to time and quality impacts that can cripple exports by small- and medium-sized enterprises from LDCs and LICs in the tea value chain.
4. **Labour scarcity and welfare is a major issue for the future of tea value chains.** In virtually all tea producing countries, it is difficult to find workers to pluck the tea crop, which makes it difficult to harvest a good quality crop. The market power of scarce labour leads to absenteeism and poor plucking timing, which makes the coordination of the tea farm a stressful and difficult task for both plantation supervisors and small-scale tea farming women. Coupled with the resilience of payment modalities that pay based on the quantity of leaf plucked, this leads to poor quality leaf that yields low returns. At the same time, the poverty prevalent amongst tea labourers makes improving their welfare an urgent development imperative. This is all the more relevant as smallholder farmers choose to leave the farm and move to paid jobs and/or to urban areas: Labourers need to be retained to replace these workers and could eventually take their places as smallholders farmers.

5. **Tea processing factories in LDCs and LICs often have antiquated tea processing machinery.** The inefficiency of these machines adds to cost and weakens quality, reducing competitiveness, while increasing the carbon and biodiversity footprint of made tea. Low levels of expertise amongst factory owners and managers concerning the potential for quality enhancement in factory processes and marketing further impedes efforts at product upgrading. Investments in human and physical capital at the factory level are thus needed for both process and product upgrading to improve price and quality competitiveness.
6. **Capturing more of the final value of tea within the producing country poses a challenge.** Functional upgrading to processing and packaging nodes of the value chain can enhance the profitability of firms and trigger economic development alongside social benefits. However, developing country firms face formidable barriers in accessing the expertise and equipment needed to move into downstream nodes.
7. **The high tariffs on value-added products in import markets are another barrier to competitive success in the packaging and marketing nodes of the tea value chain.** Exporting a significant percentage of produce to one or two countries can make firms vulnerable to market volatility. While exporting countries often have deep historical links with importing countries in the tea trade, reinforced by personal connections, it can be difficult to break into new export markets.
8. **The final challenge turns on the need for research into development of the tea value chain.** Climate change is affecting the regions that are suited for tea growing and increasing the need for drought- and hail-resistant varieties. The overuse of pesticides and fertilisers, and standards against their use, has increased demand for knowledge about alternative input management practices. Finally, to take advantage of opportunities to build brands and access new markets, firms need marketing research tailored to the export profile of the country.

7. CONCLUDING POLICY RECOMMENDATIONS

This paper has conducted a comparative analysis of the tea value chains in Kenya, Sri Lanka and Nepal. A mapping of the dynamics of the international tea trade, and the value chains in each of the countries, was followed by an analysis of drivers of competitiveness. The organisation of firms at each chain node, the policy framework and the pattern of standards adoption influenced the competitive niche that each country has developed. This niche has in turn influenced which SDGs have been attained.

In Kenya, policies that promoted productivity and supported the status quo in terms of firm ownership encouraged product upgrades which led to a competitiveness profile in high-quality bulk exports. This strategy provided employment, stimulating consumption and fiscal linkages, but sparked little connection to the rest of the economy and had little scope for triggering economic development. In Sri Lanka, policies that incentivised functional upgrading encouraged a competitiveness profile in value-added packaged products which stimulated forward linkages from the tea sector to the rest of the economy, helping to trigger broad-based economic development. However, further steps are needed to ensure continued social and environmental benefits from this strategy. In Nepal, policies that promoted product upgrading from the bulk low-quality to the speciality GVC subchains helped to diversify exports and earn higher revenues for a fraction of the output, but infrastructure, quality and marketing remain a challenge.

The following policy interventions are recommended:

Create a national tea policy through multi-stakeholder collaboration: The lack of a shared vision in the Kenyan tea GVC has led to a fragmented tea value chain without policy direction. Here and in other producing countries, the creation of a national policy via engagement with all value chain actors can embody a shared vision for the future of the sector. The policy should also outline what needs to be done to implement it, including relevant policy tools

(e.g. taxes, subsidies, research and outreach to farmers) and a plan to resource delivery.

Establish a one-stop tea sector institution covering the entire value chain: A country's tea reputation and its capacity to pursue upgrading opportunities can be crippled by weak government organisation. Analysts often cite a lack of capacity amongst subsidiary government offices responsible for tea policy, poor resourcing of government tea offices, and inconsistency amongst multiple government bodies with authority over the tea sector. Countries that have established a strong, well-resourced central body responsible for tea, such as an independent tea board, have had a better track record of implementing a national tea policy and building a tea value chain that promotes sustainable development. Kenya and Nepal could strengthen their tea boards with this goal in mind. The board can facilitate investments in the sector, including foreign direct investment from MNCs and from projects funded by overseas development agencies, while ensuring that they are consistent with the direction set out in the tea policy and support domestic attainment of the SDGs. The tea board should also facilitate ongoing policy coordination and collaboration through regular meetings of a multi-stakeholder committee that includes other relevant government departments, exporters, factories, development agencies, NGOs, together with farmer and labour representatives.

Improve tea quality by reaching out to smallholder farmers: The quality of tea exports is the single most important ingredient in the competitiveness of developing countries' tea exports. While the move from plantation to smallholder organisation of farming is a positive one, particularly in terms of cost and social development, it poses a unique challenge in terms of changing field-level practices. In all three countries, field practice needs upgrading to meet new food safety rules, to improve productivity and the quality of tea plucked, and to achieve sustainability goals through adopting new modalities of outreach to smallholders. The government can complement and coordinate

with the programmes of other stakeholders, such as a factory, development agency or cooperative, in this regard.

The implementation of certification schemes can be used to upgrade farmer practices. Certification to agricultural standards often proceeds sequentially, starting with a domestic voluntary scheme and progressing to more demanding schemes. Success with such a strategy depends on farmer access to accompanying field-level technical advice, and also on whether the standards improve market access and returns to farmers.

A comparative study of the different business models deployed for smallholder tea certification (Doorneweert and Waarts 2012) sheds light on the variety of operational set-ups of different training schemes, but does note that none appears to be financially self-sustaining. Tea boards can encourage factory processes that incentivise quality tea leaf supply, including the practice of rejecting poor-quality leaf at the factory gate.

Address infrastructure and political constraints: Poor infrastructure is a binding constraint on the competitiveness of tea from Nepal and most LDCs. Shoddy roads and undependable electricity increase costs and reduce quality. Political instability, difficult access to ports and lengthy transit times further complicate the task of small- and medium-sized enterprises. Government investment in infrastructure for the tea sector improves its competitiveness and encourages development throughout the country.

Establish labour practices to improve quality, reduce poverty and ensure gender equality: Labour shortages and welfare are perhaps the most pressing challenge to the sustainable development of tea value chains around the world. In all three case study countries, governments can help ease labour shortages and reduce prices by encouraging immigration into tea-farming areas. Where shortages are prevalent, government policy can encourage payment modalities that improve quality of plucking, such as daily rates or rates that

depend on quality leaf. To prevent labour market power from adversely affecting quality in these situations, and to instead use it to reduce labour poverty, government policies can encourage hiring practices that ensure tea is plucked on time and with adequate remuneration to labour. This could include facilitating labour auctions, establishing a pre-arranged rotating plucking schedule or encouraging labourers to live on smallholder farms and work on a set of local farms. Government policy can promote gender equality by hiring women, including women in training programmes, and addressing obstacles to female land ownership.

Encourage domestic value addition: Firms in developing countries are all too often stuck in low-value production and processing nodes of the value chain. In all three countries, process upgrading can improve the quality and price competitiveness of processing firms, and reduce their carbon footprint, through modest investments in human and physical capital supported by government subsidies and training. To encourage product upgrading to higher-value high-quality segments of the bulk tea chain in Nepal, government policy can create national quality labels and branding that increases the likelihood of success in overseas markets and creates a domestic standards infrastructure. In Kenya and Nepal, policy tools can also trigger functional upgrading to downstream packaging and marketing nodes of the tea value chain, which stimulates forward linkages throughout the economy. This would however require a sea change in Kenya's policy vision. Policy instruments used to this end include export subsidies, tax rebates and machinery subsidies, as well as sponsorship of visits by foreign experts.

Build a reputation for quality and diversify end markets: Government participation in international tea fairs and sponsorship of trade missions to new markets, in collaboration with industry, can promote the quality reputation of the country's tea while providing access to new markets.

Establish and resource a national tea research body: The productivity and marketing success of

tea value chains depends on research tailored to domestic conditions. A well-resourced domestic tea research body can address this need through a diversified research portfolio that prioritises productivity, outreach and marketing. This can include work on breeding new tea varieties, climate change, inputs, farmer training and marketing as well as socio-economic issues.

Address tariff escalation: Although tariffs on bulk tea are quite low, packaged value-added tea products face high tariffs in many markets. This restricts the market access of developing country firms who have upgraded to value-added packaging and marketing activities. Government trade negotiators from tea producing countries can advocate for low tariffs on processed agricultural goods at the WTO and in regional and bilateral trade deals. This can boost developing country firms' ability to capture greater gains from trade.

Build national quality infrastructure, including through south-south collaboration: Competitiveness in contemporary commodity markets depends on firms' access to quality infrastructure. Governments can establish a national quality strategy alongside a strong national quality infrastructure to support their firms' efforts to demonstrate the quality of their output. This may include, for example, the establishment of a national standards body which is recognised by trading partners for testing compliance with international and export market standards. It can also include funding and technical assistance for certification efforts and the establishment of national multi-stakeholder platforms on voluntary sustainability standards. Governments of LDCs that are too small to justify the large fixed investments necessary to establish such bodies can pursue the same goals through trade facilitation negotiations with the governments of nearby large developing and emerging economies. Such negotiations can enable access of LDC firms to the larger country's quality and food safety infrastructure at reasonable cost and quick timelines. Such collaboration is particularly relevant for landlocked countries since it can also reduce the cost and time entailed in customs procedures.

LDCs have a range of policy options to use to advance their commodity value chain exports, but choices are not neutral. In choosing one policy package, the chain follows a particular pathway to competitiveness that influences future development achievements. We identify five pathways (four relating to upgrading and one to downgrading), with specific implications for policies, competitiveness and SDGs (see Table 5).

The three case study countries fall into the spectrum of these five pathways: Sri Lanka policymakers have focussed on the functional upgrading pathway, but part of its tea GVC has pursued the bulk high-quality path. Kenya has focussed policy on the bulk path, but has also benefitted from building its sustainability reputation. Nepali tea exports are, for the most part, focussed on the low-value bulk market, but part of its orthodox sector is pursuing the speciality pathway.

In choosing from these different policy packages and their associated competitiveness and SDG profiles, the governments of commodity producing developing countries can consider a variety of factors. What options are feasible given how much of the commodity they produce and the degree of trust and competence amongst policy-making stakeholders? What are their sustainable development priorities? What are the competitive opportunities and challenges in a particular commodity? The approach that is chosen in a country, and the policy tools used to pursue it, will determine the sustainability of that commodity's production in the years to come.

In conclusion, policies that encourage upgrading in tea value chains transform the livelihoods of hundreds of thousands of workers, farmers, factory owners and stakeholders. The strategic choice of those policies can help ensure that upgrading fosters inclusive growth that also promotes the achievement of sustainable development goals. This will yield dividends for the families that tend the bushes that grow our tea leaf—as well as for the consumers who benefit from the brew in their cup.

Table 5: Five Pathways to Upgrading for Improved Competitiveness and Meeting the SDGs

	Functional upgrading	Speciality	Bulk high quality	Sustainability niche	Low road
Key features	move into value-added downstream activities in the value chain	adopt “quality only” approach, focussing on elite quality and craftsmanship in production, speciality direct-to-market subchain	enhance quality, uniformity, and infrastructure for large-scale production for export	certification to an issue-specific VSS	“downgrading”, or maintaining position, in low-value, low-risk bulk exports to emerging and developing markets
Country size	medium or large	small or medium	medium or large	small or medium	medium or large
Upgrading type	functional	product	product	product	“downgrading”
Government policies	policy incentives for domestic processing and quality enhancements, including tariff rebates, subsidies for imported machinery	strict export standards; bring in experts in crafting speciality excellent-quality produce; grants for producing regions	enhancing infrastructure; R&D into productivity; encouraging foreign direct investment	establishment of a multi-stakeholder platform; provision of funding	basic support for food safety compliance; infrastructure for export
Standards adopted	international food safety rules	international food safety rules; niche branding and marketing	international food safety rules; domestic code; potentially comprehensive VSS (e.g. RA)	One-issue VSS (e.g. labour)	food safety laws of importing country
Advantages	Development of forward linkages and production capabilities capturing higher value added	development of specialised skills; very high price premium for producers; supports local culture, agroecological practices and local ecosystems	significant employment generation; higher returns for producers compared to bulk, low-quality exports; short-term gains for exporters and processors of commodities	improved sustainability for the sector; higher returns for producers; enhanced organisation and knowledge of producers	generates rural employment, reduces poverty; can stabilise farm incomes while generating export earnings
Limitations	no guarantee of social and environmental benefits	risk of enclave economic activity	limited incentive for further upgrading; no guarantee of social and environmental benefits	limited incentive for functional upgrading; potential to exclude producers unable to comply	low returns: is a high-quantity, low-margin business with little growth prospects
Tea GVC country examples	Sri Lanka	Nepal Taiwan	India Kenya Sri Lanka	Kenya Malawi	Nepal Vietnam

REFERENCES

- Azapagic, Adisa, John Bore, Beatrice Cheserek, Samson Kamunya and Aziz Elbehri. 2015. "Life Cycle Assessment of Kenyan Tea." In *Kenya's Tea Sector under Climate Change: An Impact Assessment and Formulation of a Climate-Smart Strategy*, edited by Elbehri, A., B. Cheserek, A. Azapagic, D. Raes, M. Mwale, J. Nyengena, P. Kiprono and C. Ambasa, 63-82. Rome: FAO.
- Bair, Jennifer, and Gary Gereffi. 2003. "Upgrading, uneven development, and jobs in the North American apparel industry." *Global Networks* 3, no. 2: 143-169.
- Bergman, Esmee, Adrian de Groot Ruiz and Vincent Fobelets. 2016. *The True Price of Tea from Kenya*. IDH and True Price.
- Blackmore, Emma. 2014. "Tea Market." In *The State of Sustainability Initiatives Review 2014*, by International Institute for Sustainable Development (IISD) and the International Institute for Environment and Development (IIED), 297-322. www.iisd.org/pdf/2014/ssi_2014.pdf
- Central Bank of Sri Lanka. 1999. *Annual Report*. Colombo, Sri Lanka: Central Bank.
- Chandrabose, A.S., and P.P. Sivapragasam. 2015. *Red Colour of Tea: Central Issues That Impact the Tea Plantation Community in Sri Lanka*. Human Development Organization.
- Chang, Kaison. 2015. *World Tea Production and Trade: Current and Future Development*. Rome: FAO.
- Clay, Jason. 2004. *World Agriculture and the Environment*. Washington DC: Island Press.
- Cyril, M.B. 2014. "Tea Smallholdings Sector in Sri Lanka." Presentation to the 21st session of the FAO Intergovernmental Group on Tea, Bandung, Indonesia, 5-7 November.
- Daniel, E. Valentine. 1993. "Tea Talk: Violent Measures in the Discursive Practices of Sri Lanka's Estate Tamils." *Comparative Studies in Society and History* 35(3): 568-600.
- Doorneweert, B. and Y. Waarts. 2012. "Brewing business models for smallholder tea certification." Wageningen UR.
- Fonseka, A. T. 1997. "Strategic Approach to Marketing of Sri Lankan Tea." *Sri Lanka J. Manag.* 2(2): 155-82.
- Food and Agricultural Organization (FAO). 2015. *Kenya's Tea Sector Under Climate Change: An impact Assessment and Formulation of a Climate-Smart Strategy*. Rome: FAO.
- Food and Agricultural Organization (FAO) and IGT: UN FAO Intergovernmental Group on Tea. 2016a. *Socio-Economic Factors and Implications for the Livelihood of Tea Smallholders*. Rome: FAO.
- Food and Agricultural Organization (FAO) and IGT: UN FAO Intergovernmental Group on Tea. 2016b. *Report of the Working Group on Climate Change of the FAO Intergovernmental Group on Tea*. Rome: FAO.
- Ganewatta, Gaminda. 2002. "The Market for Value Added Tea Products of Sri Lanka: An Economic Analysis." PhD thesis in Economics, La Trobe University, Australia.
- Ganewatta, Gaminda, R. Waschik, S. Jayasuriya and G. Edwards. 2005. "Moving Up the Processing Ladder in Primary Product Exports: Sri Lanka's 'Value-added' Tea Industry." *Agricultural Economics* 33(3): 341-50.

- Gitonga, Muchiri. 2016. "Task force comes up with radical proposals for tea industry." *Daily Nation*. 26 August.
- Groosman, Michael. 2011. *Sector Overview: Tea*. Utrecht, the Netherlands: IDH - the sustainable trade initiative.
- Haagsma, B., T. Vredeveld, A. Yoosuf, and D. Maurice. 2016. *External Evaluation of the UTZ Tea Programme in Sri Lanka*. Fair & Sustainable Advisory Services, Netherlands, and Nucleus Foundation, Sri Lanka.
- Henson, S., and J. Humphrey. 2010. "Understanding the Complexities of Private Standards in Global Agri-Food Chains as They Impact Development Countries." *Journal of Development Studies* 46(9): 1628-46.
- Herath, D., and A. Weersink. 2009. "From Plantations to Smallholder Production: The Role of Policy in the reorganization of the Sri Lankan Tea Sector." *World Development* 37(11): 1759-72.
- International Trade Centre (ITC) with the Ministry of Commerce of the Federal Democratic Republic of Nepal. 2017. *Nepal National Sector Export Strategy: Tea*. Geneva: ITC.
- Kaplinsky, R., and M. Morris. 2001. *A Handbook for Value Chain Research*. Ottawa, Canada: International Development Research Centre.
- Kaplinsky, R., and M. Morris. 2016. "Thinning and Thickening: Productive Sector Policies in The Era of Global Value Chains." *European Journal of Development Research* 28(4): 625-645.
- Kaplinsky, R., and M. Morris. 2017. *How Regulations and Standards can Support Social and Environmental Dynamics in Global Value Chains*. Geneva: International Centre for Trade and Sustainable Development (ICTSD).
- Kasturiratne, Dulekha, and Nigel Poole. 2006. "Creating Value for Competitive Advantage in Supply Chain Relationships: The Case of the Sri Lankan Tea Industry." Paper presented at the 99th EAAE Seminar "Trust and Risk in Business Networks," Bonn, Germany, 8-10 February.
- Kemboi, Changwony Amois. 2012. "A Value Chain Approach to Stakeholders Analysis and Management of Tea Trade in Kenya." Master's thesis, University of Nairobi.
- Kenya Human Rights Commission (KHRC). 2008. *A Comparative Study of the Tea Sector in Kenya: A Case Study of Large Scale Tea Estates*. Nairobi.
- Kenya Institute for Public Policy Research and Analysis (KIPPRA), in partnership with the African Capacity Building Foundation (ACBF). 2017. *Transforming Agribusiness, Trade and Leadership: A Capacity Needs Assessment of the Tea Value Chain in Kenya*. Special Paper No. 17.
- Kibere, Esther Njeri, Elishiba Njambi Kimani and Jeniffer Mildred Lodiaga. 2013. "Gender Dynamics in the Access and Control of Benefits Accrued from Tea Farming in Kiganjo Division, Gatundu District." *Applied Science Reports* 1(1): 6-10.
- Lernoud, Julia, Jason Potts, Gregory Sampson, Salvador Garibay, Matthew Lynch, Vivek Voora, Helga Willer and Joseph Wozniak. 2017. *The State of Sustainable Markets - Statistics and Emerging Trends 2017*. Geneva: International Trade Centre (ITC).
- Macharia, A. 2015. *Environmental issues in the tea value chain*. National Environment Management Authority. Kenya.

- Makone, Samson M., Naphis M. Bitange, Nathan O. Soire and Eveline A. Odero. 2017. "A Comparative Study of Gender Roles in Tea Sector in Embu and Murang'a Counties, Kenya: A Case Study of Smallholder Tea Farmers." *International Journal of Management & Social Sciences* 6(1): 109-17.
- Mohan, Sarah. 2013. *Institutions and Livelihoods in Nepal's Tea Value Chain: A Policy Paper*. Ottawa, Canada: International Development Research Centre.
- Mohan, Sarah. 2014. "Rethinking Governance of Complex Commodity Systems: Evidence from Nepali Tea Production." In *Scale-Sensitive Governance of the Environment*, edited by F. Padt, P. Opdam, N. Polman and C. Termeer, 220-40. Oxford, UK: Wiley-Blackwell.
- Mohan, Sarah. 2016. "Institutional Change in Value Chains: Evidence from Tea in Nepal." *World Development* 78: 52-65.
- Mohan, Sarah. 2017. "Risk and Certification to Agricultural Standards." Unpublished PhD thesis, Carleton University.
- Mohan, Sarah. Forthcoming. *Drivers of Growth and Sustainability from Bush to Brew: An Analysis of the Tea Value Chain in Nepal, Kenya and Vietnam*. United Nations Food and Agricultural Organization Working Paper. Rome: FAO.
- Nepal, R.C. 2016. "Nepali Tea Carbon Footprint." Presentation to Environmental Management Systems Training, Fikkal, Ilam, Nepal, 5 February.
- Perera, Prasanna. 2014. "Tea Smallholders in Sri Lanka: Issues and Challenges in Remote Areas." *International Journal of Business and Social Science* 5(12): 107-17.
- Ruben, R. 2017. "Impact Assessment of Commodity Standards: Towards Inclusive Value Chains." *Enterprise Development and Microfinance* 28(1-2): 82-97.
- Ruben, R. and G. Zuniga. 2011. "How standards compete: Comparative impact of coffee certification schemes in northern Nicaragua." *Supply Chain Management* 16(2): 98-109.
- Sri Lanka Government. 1995. "Report of the Presidential Commission on the Tea Industry and Trade: 1995. Sessional Paper No II." Colombo, Sri Lanka: Government Publication Bureau.
- Staritz, C., L. Plank and M. Morris. 2016. *Global Value Chains, Industrial Policy, and Sustainable Development - Ethiopia's Apparel Export Sector*. Geneva: International Centre for Trade and Sustainable Development (ICTSD).
- Sustainable Food Lab (SFL). 2014. *Using the Progress Out of Poverty Index in Agricultural Value Chains: A Case Study in Kenyan Tea*. February. Hartland, Vermont, US: SFL.
- Talbot, J.M. 2002. "Tropical Commodity Chains, Forward Integration Strategies and International Inequality: Coffee, Cocoa and Tea." *Review of International Political Economy* 9(4): 701-34.
- Van De Wal, Sanne. 2008. *Sustainability Issues in the Tea Sector. A Comparative Analysis of Six Leading Producing Countries*. Amsterdam, The Netherlands: Stichting Onderzoek Multinationale Ondernemingen/Centre for Research on Multinational Corporations.
- Waarts, Yuca, Lan Ge, Giel Ton and Don Jansen. 2012. *Sustainable Tea Production in Kenya: Impact Evaluation of Rainforest Alliance and Farmer Field School Training*. Plant Research International, part of Wageningen UR, LEI Report 2012-043. The Hague: LEI Wageningen UR.

Other recent publications from ICTSD's Programme on Inclusive Economic Transformation include:

- Opportunities for Sustainable Development in Global Value Chains: A Case Study of the Myanmar Garment Sector
Samah El-Shahat and Violante Di Canossa, 2018
- How Regulation and Standards Can Support Social and Environmental Dynamics in Global Value Chains
Raphael Kaplinsky and Mike Morris, 2017
- The Role of Aid for Trade in Building the Capacity of Developing Country Firms to Meet Sustainability Standards
Jim Redden, 2017
- Private Standards, Trade, and Sustainable Development: Policy Options for Collective Action
Fabrizio Meliado, 2017
- Leveraging the Services Sector for Inclusive Value Chains in Developing Countries
Judith Fessehaie, 2017
- Global Value Chains and Trade Facilitation: Opportunities for Sustainable Development
Ben Shepherd, 2016
- Global Value Chains, Industrial Policy, and Sustainable Development – Ethiopia's Apparel Export Sector
Cornelia Staritz, Leonhard Plank, and Mike Morris, 2016
- Global Value Chains, Sustainable Development, and the Apparel Industry in Lesotho
Mike Morris, Justin Barnes, and Moshe Kao, 2016
- The Gender Dimensions of Global Value Chains
Penny Bamber and Cornelia Staritz, 2016
- Trade Policies and Sustainable Development in the Context of Global Value Chains
ICTSD, 2016
- Inclusive and Sustainable Growth: The SDG Value Chains Nexus
Raphael Kaplinsky, 2016

About ICTSD

The International Centre for Trade and Sustainable Development (ICTSD) is an independent think-and-do-tank, engaged in the provision of information, research and analysis, and policy and multistakeholder dialogue, as a not-for-profit organisation based in Geneva, Switzerland. Established in 1996, ICTSD's mission is to ensure that trade and investment policy and frameworks advance sustainable development in the global economy.