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COMMITTEE ON COMMODITY PROBLEMS

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UPGRADING IN THE INTERNATIONAL TEA SECTOR: A VALUE CHAIN ANALYSIS

Table of Contents

	Paragraphs
I. INTRODUCTION AND OBJECTIVES	1 – 4
II. THE CONCEPT OF UPGRADING	5 – 8
III. MEASURING UPGRADING THROUGH EXPORT UNIT VALUES AND MARKET SHARES	9 – 10
IV. QUANTITATIVE RESULTS	11 – 24
A. TRENDS IN WORLD TEA MARKETS	11 – 15
B. UPGRADING AND DOWNGRADING	16 – 24
<i>Upgrading countries (quadrant 2)</i>	17 - 19
<i>Downgrading countries (quadrant 4)</i>	20 - 23
<i>Decreasing (increasing) market share and increasing (decreasing) export prices (quadrants 1 and 3)</i>	24
V. CONCLUDING COMMENTS	25

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I. INTRODUCTION AND OBJECTIVES

1. At its Fifteenth Session, the Intergovernmental Group on Tea requested the Secretariat to undertake a study on the tea value chain from producer to retail levels to include an analysis of factors determining world tea prices and a study of comparative costs of production.
2. Despite repeated requests from the Secretariat for the necessary information required to carry out the analysis, only India provided information on costs of production. Therefore, the following analysis is a more generalised examination of the factors determining world tea prices through the use of value chain analysis.
3. A value chain analysis typically examines the activities involved in marketing a product, from research and development, to raw materials supply and production, to transport and delivery, noting where value could be added, and examining business needs and how upgrading particular activities could enhance profitability. The analysis of upgrading is relevant to the tea producing countries as it helps assess the fundamental factors affecting world tea prices, and the policy initiatives which could improve profitability. This study measures the upgrading performance of five products¹ by examining the evolution of market shares of major world tea exporters and their corresponding export unit value between 1993/1995 and 2001/2003. Tea exporting countries are ranked as *upgrading* if their products moved to a higher priced segment of the market without losing market share².
4. The document is divided into three parts. Firstly, it discusses and defines the concept of upgrading. Secondly, the methodology is described and quantitative results examined³. Finally, major conclusions and their potential implications are summarised.

II. THE CONCEPT OF UPGRADING

5. Upgrading in this paper means a move to activities which offer higher export prices. Evidence shows that upgrading can be accomplished in two ways.
6. First, by shifting to higher value added activities within the chain, an expansion referred to as vertical process integration. For tea, this type of upgrading requires producing countries to vertically integrate intermediate and final processing activities, which are often value added stages of production such as tea bags or retail packs.
7. Secondly, by product differentiation, which can be vertical (higher quality), or horizontal (organic, fair traded, and gourmet). For Sri Lanka, exports of value added tea (retail packs, tea bags, metal cans, wooden boxes, etc) accounted for 41 percent of total volume in 2003, while export of tea in bulk was limited to 59 percent.
8. It is worth emphasising that upgrading does not necessarily require integrating intermediate and final processing activities. Producing countries could attain higher net returns in the non-value added market, as long as costs of production remain below economic returns. Nonetheless, upgrading into value added products offers potentially higher export prices and is an integral part of export diversification strategies in the face of volatile commodity prices.

¹ Products with the following HS codes: 090210: Green tea in packings <= 3 kg; 090220: Green tea in packings > 3 kg; 090230: Black tea in packings <= 3 kg; 090240: Black tea in packings > 3 kg; 210120: Extracts, essences, concentrates and preparations of tea or mate.

² The analysis is based on trade statistics disaggregated at product level from two sources: FAOSTAT, and UNCOMTRADE databases.

³ Please see document CCP:TE 05/CRS 5.

III. MEASURING UPGRADING THROUGH EXPORT UNIT VALUES AND MARKET SHARES

9. Several indicators exist to measure the degree of upgrading, including research and development related indicators. This analysis uses export unit prices along with changes in market shares⁴.

10. The use of unit value along with data on market share adds additional insight into the analysis. If a country raises its export earnings as a result of increasing market share without any improvements in unit price, then it is likely to face falling terms of trade. On the other hand, increasing unit prices along with non-decreasing market share suggest the country is upgrading towards higher segments of the market. Let us consider the evolution of country B's export value of product i from time t to time t+n as:

$$\begin{aligned}\Delta X_i &= X_{i,t+n} - X_{i,t} \\ &= V_{i,t+n}Q_{i,t+n} - V_{i,t}Q_{i,t} \\ &= V_{i,t+n}(\Delta M_i Q_i^w + M_{i,t}\Delta Q_i^w + \Delta M_i \Delta Q_i^w) + Q_{i,t}(\Delta V_i)\end{aligned}\quad (1)$$

Where: $X_{i,t}$ country B's export value of product i at time t

$Q_{i,t}$ country B's export volume of product i at time t

$V_{i,t}$ unit value of country B's exports of product i at time t

$M_{i,t} = Q_{i,t}/Q_i^w$, with $M_{i,t}$ being the market share of country B of product i at time t

Expression (1) postulates that a change in a country B's export value of product i flows from three basic elements: 1) a change in country B's market share for product i (ΔM_i); 2) a change in world export of product i (ΔQ_i^w); and 3) a change in price unit value of product i (ΔV_i).

Four possible outcomes regarding upgrading can emerge. 1) Country B is upgrading over time if its market share is increasing along with rising unit price relative to competitors⁵, 2) country B is following a downgrading path if both market share and unit price are falling over time. The other remaining two possibilities represent an ambiguous case. First, when country B has a decreasing market share and an increasing unit price, it is likely that country B is focusing on specific market niches with higher priced products. Second, when country B has an increasing market share, but a decreasing unit price, relative to the average of all major exporters, it is indicative of declining terms of trade, given no productivity gains. The following figure illustrates the possible cases:

Figure 1: Upgrading, and downgrading, four possible outcomes.

	Market share decreases	Market share increases
Unit price increases relative to market average	<i>Depends on the rate of price and increase and the degree of falling market share</i>	Upgrading
Unit price decreases relative to market average	Downgrading	<i>Depends on the rate of price decline and the degree of increasing market share</i>

⁴ The first use of unit value as a measure for innovation was in a study carried out by the UK National Economic Development Office focusing on the UK competitiveness (Stout, et al. 1977). More recently, Schott (2002) used unit price to measure the level of trade specialisation in the US, while Aiginger (2000) applied unit value to measure quality and product innovation in EU imports. Other studies include Celi and Smith (2003), Anderton (2003), Kaplinski et al. (2004), and Gibbon (2003).

⁵ "Relative to competitors" means that the percentage change in unit price between 1993/1995 and 2001/2003, for a specific country and a specific tea market, is greater or equal to the average unit price change of all major exporters during the same period and for the same tea market. This isolates increases in unit price value due to external factors – e.g. increases in world demand-, from increases in prices due to upgrading.

IV. QUANTITATIVE RESULTS

A. TRENDS IN WORLD TEA MARKETS

11. At the three-digit SITC level (Standard International Trade Classification), and for the period of 2001/2003, tea was the 21st largest exported product out of 27 agricultural product groups. With most of the agricultural products experiencing declining unit price of about 20 percent between 1993/1995 and 2001/2003⁶, tea unit prices fell by 2 percent, the second smallest negative change among all product groups, underpinning the relatively stable tea prices during the last 10 years. In comparison, coffee and cocoa unit prices fell by 39 and 38 percent, respectively, with coffee export value declining as much as 24 percent (from US\$ 11.3 billion in 1993/1995 to 8.6 billion in 2001/2003).

12. The top 5 exporting countries represented about 68 percent of total tea exports, in 2001/2003, with Sri Lanka being the largest export earner (US\$ 550 million). Over the period of analysis, Vietnam showed the largest percent change in export value (254 percent), followed by Sri Lanka (97 percent), while the United Kingdom, Indonesia and Tanzania recorded a 5 percent, 11 percent, and 14 percent decline, respectively. Of the 20 major exporters, 6 were high income countries, with France, Belgium, and Germany increasing tea exports by more than 44 percent, reflecting exports of value added tea (importation of tea in bulk for blending and retail packed for exports).

13. Table 1 illustrates changes in the tea trade by product category, value and volume wise. In terms of volume, world tea exports expanded by 1.4 percent between 1993 and 2003, supported by large export growth in both green tea and black tea markets, mostly as a result of supply-side driven policies to raise production capacity (e.g. Vietnam).

14. Value added black tea was the only market to show a rising unit price (21.9 percent), with prices for bulk black tea, and bulk green tea declining by about 4.5 percent and 28 percent, respectively (See figure 2). There were, nonetheless, varying performances within each market, as illustrated by the growth in export prices for value added green tea products originating from Sri Lanka, China, Tanzania, Kenya and the United Kingdom.

15. The analysis revealed a trend toward a “unique” world price for value added black tea, as the dispersion⁷ of individual countries unit prices around the average export price declined by 32 percent. This decline in the average export price differential between individual exporting countries was exacerbated by the growing diversity in global supply sources; the number of countries with a least 0.50 percent market share grew from 14 in 1993 to 20 in 2003. With rising global competition in the value added market, and particularly for the value added black tea, factors such as quality, standards on food safety, maximum residue levels (MRLs), and labelling rules will have a major effect on price realisation. Rising global competition in the value added market also led to increasing quality premia. This was for example the case in Sri Lanka where the price differential between the low grown teas and high grown teas, realized at the Colombo tea auction in 2003/2004, was 20 percent higher than that of 2001/2002. This contributed to building substantial price parity among the better teas. The development of processed exports, as illustrated in this analysis, along with the rise in export price differential opens up the opportunity for firms to use different grades of teas to cater for local and/or foreign markets.

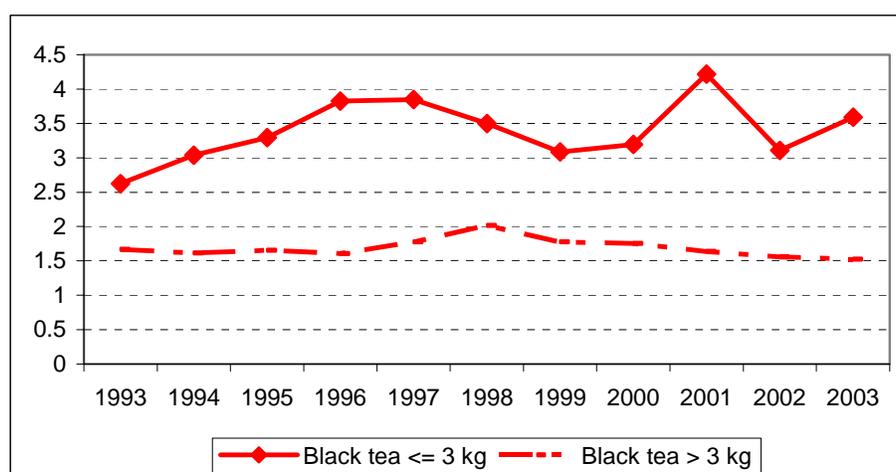
⁶ A three-year average is used in order to even out year-on-year currency fluctuations.

⁷ Illustrated by the standard deviation of all individual countries' unit prices.

Table 1: Changes in tea trade by market category

	1993/1995			2001/2003			% change in value	% change in quantity	% change in unit value
	Value (US\$'000)	Quantity (MT)	Unit value (US\$/kg)	Value (US\$'000)	Quantity (MT)	Unit value (US\$/kg)			
Black tea in packs < 3 kg	617356.0	209907.4	3.0	802174.3	222894.6	3.6	29.9	6.2	21.9
Green tea in packs < 3 kg	59255.9	19029.2	3.1	181928.6	78155.5	2.3	207.0	310.7	-25.3
Black tea in packs > 3 kg	817930.8	497680.5	1.6	1443174.8	918664.0	1.6	76.4	84.6	-4.4
Green tea in packs > 3 kg	173488.1	97732.0	1.8	187562.7	148202.2	1.3	8.1	51.6	-28.7
Extracts of tea or mate	126594.0	62383.7	2.1	286658.4	197222.4	1.5	126.4	216.1	-30.5

Source: Data calculated from UNCOMTRADE and FAOSTAT.

Figure 2. Price Changes in black tea products (US\$/Kg)

B. UPGRADING AND DOWNGRADING

16. This section identifies both upgrading and downgrading countries based on the methodology presented in section III. Figure 3 charts the distribution of exporting countries performance in each of the five tea products.

Upgrading countries (quadrant 2)

17. This quadrant shows countries experiencing growth of both market share and export unit price between 1993/1995 and 2001/2003. 15 countries make up this group, with 5 of them upgrading in 2 markets or more. These countries succeeded in upgrading their activities, in specific markets, and captured higher prices than competitors. This was the case for Uganda and Sri Lanka, where export earnings from value added black tea rose by 217 percent and 80 percent, respectively.

18. Rising export unit value for value added black did not, however, translate into higher prices at auction markets and thus better prices for producers. Over the period between 1993 and 2003, the price spread (marketing margin) between the average export price of value added black tea and the FAO Tea Composite Price rose by 7.5 percent, as the FAO Composite Price averaged a declining growth rate of 0.24 percent compared to a 3.5 percent growth in the export price of value added black tea. Future research may have to focus on the source of the growing marketing margin - whether it is due to rising costs in processing, distribution, and marketing, or due to a non competitive market

structure- and the implications for policy intervention, particularly with respect to establishing reasonable price sharing schemes between tea growers and manufacturers.

a) Strategic implications from quadrant 2:

19. The following lists some strategies which might be used to retain and/or capture more earnings in upgrading markets based on the experience of countries included in quadrant 2, as well as recommendations from the value chain analysis:

- Encourage and strengthen backward linkages through utilisation of locally available materials and inputs (e.g. packaging and blending machinery could be acquired from national/regional suppliers).
- Take measures to improve quality control and monitor production processes, particularly with regard to pesticides and MRLs fixed by the European Union.
- Knowing that some of the highly priced tea bags may contain up to 21 teas from different sources, it is likely that relaxing imports of teas into producing countries for blending and processing will help toward enhancing product quality, diversifying sources, and expending possible blending combinations. Relaxing import restrictions will help expand South-South trade cooperation.
- Increase efficiencies within the national component of the value chain by assessing the performance and dynamics between linkages. Such an assessment should inform policy makers about the type of trade support initiatives, and competition policies needed to expand the performance of the value chain.
- Encourage exporters/producers to participate in international trade fairs, single country exhibitions and specialised fairs to expand and consolidate existing markets as well as identify potential niche markets. New initiatives by exporters could enlarge the scope of geographical diversification of exported value added teas.

Downgrading countries (quadrant 4)

20. This quadrant shows countries experiencing both falling market share and export values. Twenty-one countries make up this group, with nine countries downgrading in two markets or more. This group includes a mix of low-income countries such as Bangladesh, India, and Tanzania, and high income countries such as the United States, and the Netherlands. These countries lost market share and earned less than competitors in specific tea markets.

21. This was the case for India and Bangladesh, where export earnings from value added black tea declined by 18 percent and 52 percent, respectively. Similarly, Indonesia, and the United Kingdom experienced downgrading in at least one market.

22. The issue for these countries is to determine whether specific downgrading markets remain relevant to the national export strategy. If so, what type of policy initiatives can be implemented to boost export performances. Policy makers can begin by evaluating performance gaps, noting where value could be added at each link in the chain, noting business needs and how upgrading their activities could be carried out.

a) Strategic implications from quadrant 4

23. In the face of both declining export prices and falling market share, the value chain analysis proposes four upgrading strategies. Countries included in quadrant 4 may want to consider the following:

- **Functional:** Enhance export performance by altering the mix of activities performed within the sector/firm - for instance, outsource (Tea cooperatives might consider a more effective green leaf collection system to decrease unit cost), or take responsibility for logistics, design and promotion – or move core activities to different links in the value chain (from production to design and marketing).
- **Product:** In the case of value added teas, improve old products and/or introduce new products more rapidly than competitors. This requires improving product development processes both within and between individual links in the value chain. In recent years, successful product innovation included gourmet loose leaf black teas, red teas, white teas, and display teas. At the production level, use advanced technologies in tea cultivation, including new tea strains.
- **Processing:** Enhance effectiveness and efficiency of internal processes so that these are up to the level or better than those of competitors - for example, steps could be taken to speed up processing of freshly plucked tea leaves, improve monitoring of the fermentation stage, expand storage and packaging activities, enhance traceability, and develop access to information technology.
- **Chain:** Move to a new value chain, if it is thought that the specific market is no longer relevant to the firm's overall export strategy. However, it is worth noting that production is only one of the links in the value chain. The 'bigger picture' needs to be assessed in addressing problems in downgrading market. Issues such as import, export and fiscal policies (import and export taxes) have a major effect on export performances.

*Decreasing (increasing) market share and increasing (decreasing) export prices
(quadrants 1 and 3)*

24. These quadrants exhibit countries with decreasing (increasing) market share and rising (declining) export unit value. Export performances will depend on the rate of price increase/decrease and the degree of falling/rising market share. In the case of China, the 30 percent decline in export price of value added green tea was offset by a 59 percent rise in volume, between 1991/1993 and 2001/2003, resulting in a 10 percent rise in export earnings. Under this scenario, a fall in export prices implies upgrading only if it comes as result of productivity gains; otherwise it suggests declining terms of trade.

Figure 3: Upgrading performance for some tea exporting countries

<i>Increasing unit prices</i>		Upgrading	2
1			
Brazil, d, b		United Kingdom, a,b	
France, a		Sri Lanka, a,c,d	
Hong Kong, China, a,d		Germany, a,c	
Indonesia, a		Brazil, a	
Italy, a		Kenya, a,b,c	
Taiwan, China, b		France, b	
India, a		Japan, b	
Sri Lanka, b		Tanzania, b	
Netherlands, d,e		Belgium, b	
Canada, e		Poland, c	
Bangladesh, b		Oman, c	
South Africa, b		Sweden, c	
China, c		Uganda, c	
Russian Federation, c		Egypt, d	
Malawi, d			
United Kingdom, d			
Singapore, d			
Kenya, d			
Taiwan, China, d			
<i>Decreasing market share</i>		<i>Increasing market share</i>	
4	Downgrading		3
China, d ^{1/}		China, a,b,e	
Japan, a		Germany, b	
Belgium, a		Singapore, b,e	
United States, a,b,d,e		Netherlands, b	
Netherlands, a,c		Rwanda, c	
India, a,c,d		Canada, c	
Oman, a		South Africa, d	
Indonesia, b,c,d		Switzerland, e	
Hong Kong, China, b		United Kingdom, e	
Germany, d,e		United States, c	
Italy, e		India, e	
Georgia, b		Poland, e	
United Kingdom, c		Japan, e	
France, c		Indonesia, e	
Bangladesh, c,d		Belgium, b	
Turkey, c,d			
Kenya, e			
Argentina, d			
Tanzania, d			
Switzerland, d			
Sri Lanka, e			
<i>Decreasing unit price</i>			

¹ Letters refer to the following:

a: Green tea ≤ 3 kg

b: Green tea > 3 kg

c: Black tea ≤ 3 kg

d: Black tea > 3 kg

e: Extracts, tea or mate

V. CONCLUDING COMMENTS

25. The analysis of upgrading provides an indication of factors affecting world tea prices, and what policy initiatives could be implemented to improve export performances. This paper looked at export performance of five tea products by monitoring the evolution of market shares for major world tea exporters and the changes in export unit value. The following can be drawn from the analysis:

- Export prices of value added black tea products increased by more than 21 percent between 1993/1995 and 2001/2003, supported by a 6 percent growth in export volume over the same period. However, the results showed a widening marketing margin between value added export prices and the FAO Tea Composite Price (weighted price average of the main tea auctions) over the period of analysis, implying that tea growers are not fully benefiting from the consumer's rising demand for value added product. There is a need to formulate strategies to enhance growers' participation in the value added market, especially for countries where smallholders account for more than half of the total tea production (e.g. Kenya, Sri Lanka).
- Black tea exporting countries showed diverging performances- Sri Lanka, Kenya, and Uganda all experiencing upgrading (increasing of both export prices and market share), while India, Indonesia and the United Kingdom observed downgrading performances for some tea products (declining of both export prices and market share). This raises the question of how to address the issue of downgrading performance, as declining export prices along with market share implies falling export earnings and declining terms of trade. In this context, the value chain analysis proposes four alternative upgrading strategies. These are: functional, processing, chain, and product upgrading.
- The analysis also revealed a fall in export price differential between individual exporting countries as a result of the growing diversity in global sourcing; the number of countries with a least 0.50 percent market share grew from 14 in 1993 to 20 in 2003. With rising global competition in the value added market, factors such as standards, quality, and labelling requirements will affect price realisation.
- While the value added market offers new opportunities and prospects, it also raises constraints. Investment costs are considerable for the establishment of viable processing plants and for undertaking marketing efforts. Branded value added products may increase earnings, but having them recognized and accepted at the global/national level is challenging and expensive. Public intervention in the form of tax breaks, subsidies, and technological support have been useful in launching successful processing units in some instances.
- Members may wish to consider which of the successful experiences mentioned in this report can be replicated by other countries, and point out to what extent public policy can induce industry upgrading.