Tanzania's Tea Sector

Constraints and Challenges

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ABSTRACT

Tanzanian tea is grown under two systems: by smallholders, on plots averaging less than a hectare, and on large estates, which often exceed 1,000 hectares. In the mid-1960s the government introduced steps to encourage smallholder production, and by 1985 smallholders accounted for almost 30 percent of total tea output. By the late 1980s, however, serious problems were visible in the smallholder sector and by 1995, as the sector's share fell below 10 percent, it was clear that only broad-based policy reforms could bring the sector back from the brink.

The government tried to revive the sector in the early 1980s by privatizing and rehabilitating two tea estates, which had been nationalized in the 1970s; restructuring the Tea Board; privatizing the six state tea factories; and revamping public research on tea. These policy initiatives have had some success, but much remains to be done to fully revitalize the tea sector. Infrastructure is still inadequate. The tax system is too complex, with too many taxes and rates that are too high. Despite the restructuring, the Tea Board and the Ministry of Agriculture are still too powerful. And trade policy needs to be revised to allow imports of made tea and exports of green leaf.

I. INTRODUCTION

Tea contributes about $25 million to Tanzania's export earnings, making it the fifth largest export crop after cashews, coffee, cotton, and tobacco. More than three-quarters of Tanzania's tea is exported. Tea provides employment to 50,000 families and directly or indirectly affects as many as 2 million Tanzanians. Though tea is economically important for Tanzania, the country produces less than 1 percent (25,000 tons) of estimated world tea production of 3 million tons.

Before Tanzania's independence in 1961 large estates dominated tea production. By the mid-1960s the government was encouraging smallholder production, with some success, and by 1985 smallholders accounted for almost 30 percent of output. By the late 1980s, however, there were visible signs of distress in the smallholder sector. Late payments to farmers by the Tea Board, the collapse of the research system, and inadequate investment in tea factories, roads, and transport equipment contributed to the decline. By the early 1990s it was clear that only broad-based policy reforms would steer the sector back in the direction of success.

This paper examines the performance of the Tanzanian tea sector and identifies policy-driven impediments, especially for the smallholder sector. It looks at the causes of its poor performance, evaluating policy reform initiatives and exploring alternatives in the context of the world tea market. The analysis is complemented by a review of the world tea market.

II. A BRIEF HISTORY OF THE TEA INDUSTRY IN TANZANIA

Tea was first planted in Tanzania in 1902, when German settlers introduced the crop to the Agricultural Research Station in Amani and Rungwe. Commercial production began in 1926 in Usambaras and Njombe. In 1934 Tanzania produced 23 tons of made tea. After World War II, when the British took over the tea plantations, production rose from 2,723 hectares in 1945 to 7,336 hectares in 1960, yielding 3,722 tons of made tea.

Before independence tea was produced on estates, a common practice in many African and South Asian tea producing countries. All tea-related matters were handled by the Tanganyika Tea Board, renamed the Tea Board of Tanzania after independence. Smallholder tea farming begun in the early 1960s under the supervision of the Ministry of Agriculture. In 1968 the government initiated a full-fledged smallholder tea development program, and all aspects of smallholder tea marketing and trade were turned over to the Tanzania Tea Authority, established by an Act of Parliament as a state-owned corporate body. The Tea Authority assumed a wide array of responsibilities as the following excerpt shows:

[The Tea Authority is] responsible for all aspects of smallholder tea development as well

> *as for the functions previously excersized by the Tea Board of Tanzania. The authority is empowered to: promote, supervise and implement programmes for the development of the tea industry. This includes the supervision of planting, cultivation and harvesting of tea; inspect plantations and green leaf, negotiate agreements for leaf processing and organize the purchase and transport of green leaf. The [Tanzania Tea Authority] also takes part in the establishment, control and management of tea factories, control tea marketing, and acts as national marketing agent; and advising and make recommendations to the Minister on the development of the tea industry* (Tanzania Tea Authority 1989).

The Tea Authority promoted smallholder tea production, typically on plots of about a third of a hectare. Smallholders accounted for about a quarter of Tanzania's tea production during the early 1980s and as much as 29 percent in the 1985/86 season. Most of the smallholder tea leaf went to the eight Tea Authority-owned factories for processing, and the rest to factories owned by the estates. Note that smallholder tea production in Tanzania has been supported by two World Bank operations: a $1.4 million loan in 1966 (part of an agricultural credit project) and a $7.1 million loan in 1972 (Singh and others 1977; World Bank 1971)

TABLE 1: PRODUCTION AND YIELDS OF MADE TEA BY SECTOR

Despite its apparent success, as early as the mid-1980s there were signs of trouble in the smallholder sector. By the mid-1990s its share dropped below 10 percent and by 1998 it fell to 5 percent, the lowest level since tea was introduced as a smallholder crop (table 1). Contributing to the decline were low prices and late payments by the Tea Authority, old and inefficient processing factories, inadequate use of inputs, rundown transport equipment and roads connecting farms to tea factories (feeder roads), and declining yields because of a failure to switch to high-yielding clonal varieties. Deterioration in the smallholder sector is vividly summarized in a World Bank (1983) report. Interestingly, the report was written when the smallholder sector was at its peak, implying that while the sector appeared healthy, the fundamentals were poor. It commented as follows:

> *Even in traditionally high grade producing areas … there is a problem of engineering standards, lack of spare parts, power failures, non-replacement of machinery and overloading. There have also been substantial delays in payments to smallholders, as a result of Tea Authority's precarious financial position. (p. 24). … Accounting records show total "over payments" for green leaf to smallholders amount to Tsh 3.6 million, implying falsified weight and/or payment records. Similarly, per kilogram costs attributed to Tea Authority-managed estate production were up to three times higher than the price paid to smallholders, again implying great inefficiencies if not falsification of records. (p. 87).*

Estate production, on the other hand, followed a largely independent path, with output growing considerably during 1990s. By the 1995/96 season estate yields were 10 times those of smallholder plots. The high yields reflected, to some extent, the vertical

integration of estate production. Estates have their own transportation equipment and processing facilities and so are not dependent on public infrastructure. Most of the workforce lives in housing provided by the estates, which also provide medical services, schools, and other facilities. The estates, therefore, have access to a constant flow of high-quality labor (see box 1).

BOX 1: TEA ESTATE PRODUCTION—BROOKE BOND TANZANIA, LTD

The problems of the industry were reflected in the estate sector only in a limited way. When Tanzania nationalized most large companies during the 1960s and early 1970s, tea estates were exempted—with two exceptions. Nearly all estates were foreign owned, and there were fears that nationalization would lead to retaliation by the London auction, which handled all Tanzanian tea. The Kwamkoro estate, operated by Bird and Company (Africa) with 630 hectares under tea, was nationalized in 1967, and the Bulwa estate, operated by Sikh Sawmills Company with 680 hectares under tea, was bought by the government in 1971. These estates were taken into public ownership because they formed part of the operations of nationalized companies involved in other activities. The Kwamkoro estate was placed under the Sisal Corporation, later absorbed by the Tanzanian Sisal Authority, and the Bulwa estate was placed under the Tanzanian Wood Industry Corporation. The Tea Authority took over the Bulwa estate in 1977 and the Kwamkoro estate in 1986.

Before nationalization the two estates together produced more than 1,800 tons of made tea. After nationalization production reached a low of 300 tons in the mid-1980s as 538 hectares of the original 1,318 hectares were abandoned and 256 hectares were only partially planted. The factors behind the deterioration were similar to those in the smallholder sector. Reports by the Agricultural Planning and Marketing Division of Tanzania's Ministry of Agriculture and Livestock Development blamed labor shortages because of late payments of wages and poor housing conditions for workers, inadequate maintenance of feeder roads, underinvestment in factories, old and badly maintained transport equipment, lack of fuelwood due to inadequate replanting of trees, and lack of credit.

Public research on tea also ran into major problems. Before independence research for the East Africa tea producing region was conducted by the Tea Research Institute of East Africa. Following the collapse of the East African Community in 1977, the research program was transferred to the Department of Research and Development of the Ministry of Agriculture and Cooperatives, but the program was inadequately funded. The tea estates contracted with a U.K. university to operate a tea research unit, housed in one of the estates in the Southern Highlands. The research focused on production systems with high input intensity, as practiced in estate tea production. However, some valuable research results were also transferred to smallholders.

III. THE ROAD TO RECOVERY

Deterioration of the two nationalized estates, the poor performance of the smallholder sector, and the collapse of the research system clearly signaled the message that broad-based reforms were needed to revive the tea sector. The first step was the privatization and rehabilitation of the two Tea Authority estates, which took place from 1988 to 1993. Restructuring the research system came next with the establishment of the Tea Research Steering Committee in 1988, which recommended creating an independent research organization (which was not done until 1996).

More pressure for reforms came in 1994, when the Ministry of Agriculture and Cooperatives recommended privatizing the Tea Authority factories to open the way for a more efficient collection and payment system, creating a Tanzanian Smallholder Tea Farmers Development Agency to promote smallholder production, reducing the tax and tariff structure to attract investment, and establishing a tea auction. These recommendations complemented those made by the World Bank (1994) that same year: allow valuation of tea exports at the market rate of foreign exchange, privatize management and perhaps even ownership of the Tea Authority factories, and transform the Tea Authority into a regulatory entity.

Rehabilitating the East Usambaras Tea Estates

The first step toward reform was privatization of the two nationalized estates in the East Usambaras, a process that extended from 1988 to 1993. The government considered three options: do nothing and let the estates and their factories close; let the estates continue producing at a loss with minimal renovation over the next 10 years, by which time their residual value would be zero; or fully rehabilitate the estates with external assistance. The third option was selected, mainly for political reasons (Faber 1995).

The Commonwealth Development Corporation, a statutory corporation of the British Government which invests in enterprises in developing countries, was invited to purchase a 60 percent equity share in the estates, with the rest to be retained by the Tea Authority. They would form a joint venture to rehabilitate the estates. The incremental funding was estimated at £5.9 million.

Rehabilitation—long, difficult, expensive, and ultimately successful—took five years and cost £2.6 more than expected as a result of underestimating the costs of rehabilitation (the total cost was £8.5 million). The privatization and rehabilitation of the two tea estates was important to the success of tea sector reform and offered an important lesson (Faber 1995, p. 1346):

> *Without a program of reforms, the rehabilitations will not succeed; without the rehabilitations, the country will lack the foreign exchange to sustain the program …. Perhaps the*

most important lesson of all is that continuity of commitment, a deep pocket and plenty of patience are likely to be required of those undertaking rehabilitation projects. Great rewards may ultimately be gained but they have to be struggled for, often for longer than originally anticipated.

In 1995, the Commonwealth Development Corporation and Karimi Agriculture signed a memorandum of understanding to merge the two tea estates—Karimi was a company owing an 882-hectare tea estate in the East Usambaras. Following some difficulties initially, the two companies were finally merged. In 2001, it was understood that that the role of the Commonwealth Development Corporation had been fulfilled and the new company, the East Usambaras Tea Company, was sold to Global Tea and Commodities, a United Kingdom-based tea packing company. The East Usambaras Tea Company currently operates three tea factories, is the third largest tea producer in Tanzania (after Brooke Bond Tanzania, Ltd. and the Mufindi Tea Company), provides employment to some 3,500 workers and produced more than 3,600 tons of made tea in 2000.

Separating Regulation and Smallholder Promotion

This divestment of commercial activities was just one step in the reform of the Tea Authority. Next came the separation of its regulatory and development functions. The Tea Act of 1997 established the Tea Board of Tanzania and the Tanzania Smallholder Tea Development Agency. Their functions were set out in the Tea Regulations of 1999.

The Tea Board is responsible for regulating tea cultivation and processing, licensing tea blenders and packers, licensing and controlling tea exports and imports, collecting statistics on the tea industry, and representing the government in international tea forums.

TABLE 2: PRINCIPAL INSTITUTIONS INVOLVED IN THE TANZANIAN TEA SECTOR

The Tanzania Smallholder Tea Development Agency is responsible for promoting and developing the smallholder tea sector, advising the Ministry of Agriculture and Food Security on tea industry matters, offering extension services to smallholders, and monitoring the privatization of TTA factories. The Smallholder Tea Development Agency is a member of the Tea Association of Tanzania, where it represents the interests of smallholders. Although the Tea Association of Tanzania has been around since 1943, it began to take a much more active role in 1989 when it was established as a private entity. Its objectives are to promote and protect the interests of the tea industry in Tanzania, to influence government policy affecting tea, and to negotiate on behalf of the industry with government, the Tea Board, and trade unions. The principal institutions in the Tanzanian tea sector and their roles are outlined in table 2.

Privatizing Tea Authority-Owned Factories

One of the most important steps in tea sector reform was the decision to privatize the tea factories (see figure 1 for the new marketing structure). Of the six Tea Authority-owned tea factories put up for sale in 2000, four were in private hands as of November 2001 and three of them have begun renovating the facilities and paying farmers more promptly. Long delays in payment were the norm under Tea Authority ownership.

FIGURE 1: TEA PRODUCTION AND MARKETING STRUCTURE IN TANZANIA

The four privatized factories are Katumba and Mwakaleli, which are now under Wakulima Tea Company and managed by Tanzania Tea Packers; Mponde Tea Factory, renamed the New Mponde Tea Factory; and Maruku Tea Factory, renamed the Kagera Tea Company. The two factories undergoing privatization are the Lupembe Tea Factory and the Dabaga Tea Factory (Mdee 2001, pp. 10-11).

Reviving Research

Until 1996 tea research was funded by the government through the Ministry of Agriculture and Cooperatives. By the mid-1980s the research program was in a state of collapse. The Tea Research Steering Committee formed in 1988 to arrest the decline in research recommended creation of an independent research organization funded primarily through industry levies.

The Tea Research Institute of Tanzania was established in July 1996 as a non-profit organization (TRIT 2000/01). In July 1997, the staff Ngwanzi Tea Research station, a privately funded organization in the Southern Highlands was officially incorporated into TRIT. In October 1998 a similar transfer to TRIT from the government-owned and managed Marikitanda Tea Research Station in the East Usmbaras took place. In 1998, Cranfield University at Silsoe in the United Kingdom was appointed as the managing agent of TRIT, which reports to the Board of Directors.

Currently, the Institute is managed by a 10-member board, with broad representation, including estates, smallholders, and the government. As a nonstatutory body the Tea Research Institute can use merit and performance criteria rather than seniority to determine the salaries and promotion paths of its researchers. Dissemination of research findings to estates and small tea growers is managed by the institute's Technology Transfer Unit. As recommended by the steering committee, the institute is funded by the industry. The institute receives 1.5 percentage points of a 2.5 percent levy on the net sale value of made tea; the other 1 percentage point covers the operational expenses of the Tea Board. Although smallholders contribute just one-tenth of the tea levy (because of their small share in total output), one third of the institute's budget is earmarked for activities to benefit them.

Restructuring the Local Tea Blending and Packing Industry

More than a fifth of Tanzania's tea output is consumed domestically (currently about 5,000 tons). Before the tea industry was liberalized, Tanzania Tea Blenders, Ltd., a government-owned monopoly, handled tea blending, packing, and distribution for domestic consumption. Its activities began with a precursor institution in 1970, when the tea packing factory Brooke Bond Oxo Tanzania merged with the Tanganyika Tea Company (which operated two tea estates) to form Brooke Bond Liebig Tanzania, Ltd. In 1974 the company's sales and marketing division was partly taken over by the Tea Authority and a new state-owned company, Tanzania Tea Blenders Ltd., was launched with 60 percent shareholdings by the Tea Authority and 40 percent by Brooke Bond Liebig Tanzania, Ltd. Recently Tanzania Tea Blenders went up for privatization. Brooke Bond Tanzania (Brooke Bond Liebig Tanzania's name after 1982) was invited to take full control of Tanzania Tea Blenders but it declined.

Following liberalization, six more companies obtained blending and packing licenses. Three are in Dar es Salaam and the others are in Mafinda, Tanga, and Moshi. Tanzania Tea Packers, Ltd., based in Mafinda, accounts for almost 70 percent of the domestic market. To protect domestic blenders and packers, the Tea Board has imposed a ban on imports of packed tea.

IV. RECENT PERFORMANCE AND CONSTRAINTS

The reforms appear to be having a positive effect on the tea sector. Production of made tea rose from about 20,000 tons in 1990, to about 24,000 tons during the three seasons from 1999/2000 to 2001/02. Reports by government officials and traders at the Mombasa auction indicate that the quality of smallholders' tea has improved considerably as well, claims that are supported by the numbers. In 2000, for example, Tanzanian tea fetched the same price as Ugandan tea, commanded a 35 percent premium over Malawian tea, and sold for 18 percent less than Burundian tea and 25 percent less than Kenyan tea, the highest quality among the teas sold at Mombasa (table 3). Preliminary data for 2001 show even better performance.

TABLE 3: AVERAGE PRICES AT THE MOMBASA AUCTION BY COUNTRY OF ORIGIN

Most Tanzanian tea is exported (table 4). Major importers of Tanzanian tea include the United Kingdom (40 percent), Kenya (30 percent), and Pakistan (15 percent). Smaller importers include the United States and Canada (6 percent together) and Somalia, South Africa, and Sudan (3 percent together). An estimated 6,268 tons of Tanzanian made tea passed through the Mombasa auction in 1999, indicating that it is fairly priced. The rest is well-diversified among European, North American, Asian, and African markets. The six Tea Authority factories (four of which had already been privatized at the end of 2001) produced 1,887 tons of made tea in 2000—42 percent more than in

1998 and 33 percent more than in 1999 (table 5.)

TABLE 4: DESTINATIONS OF TANZANIAN TEA EXPORTS, 1970–99

Tea research appears to be on solid footing. Both research stations—Ngwanzi and Marikitanda—are working on several projects ranging from the development of new tea clonal varieties to optimal use of fertilizer and soil and water conservation while the technology transfer unit successfully disseminates research results to tea growers. The research institute is also engaging in contractual extension services with the newly privatized tea companies.

TABLE 5: PRODUCTION OF MADE TEA BY COMPANY, 1996–2000

These are solid achievements, but several issues still require attention: the ban on made tea imports and green leaf exports, taxation, the role of Tea Board and the ministries, and infrastructure.

Import and Export Bans Increase the Burden on the Tea Sector

The ban on black and packed tea imports has been in place since the inception of the Tea Authority. The ban on packed tea was imposed in order to protect the domestic blending and packing industry. The motivation behind the ban on black tea imports is not clear. Despite the ban, a considerable part of domestically consumed tea market is supplied by "illegal" imports from neighboring tea producing countries. While there are no solid estimates on the amount of tea imports, industry representatives and government officials concur that it is between 30 and 35 percent of domestic consumption. Industry representatives report that the imported tea is of secondary quality, in high demand among low-income rural households. The imports continue because of this demand, the difficulty of monitoring trade in rural areas, and incentives on the supply side (importers' avoidance of VAT and some exporters' avoidance of high export taxes at home).

Opinions about the "problem" and how to solve it are mixed. Ndunguru (2001, p. 7) suggests that the "war on illegal tea imports and smuggling must be strengthened. It should involve the Tea Board, Tanzania Revenue Authority and the Police." Others have noted that what some see as a smuggling problem is really an excess taxation problem: "the illegal importers bring in their cargoes free of taxation, thus making their tea much cheaper than the locally produced tea. Naturally any buyer would go in for cheaper tea than buy [the] more expensive local tea" (Mdee 2001, p. 20).

The import ban has been seen as an infant industry protection measure: "The Tea Board of Tanzania has been waging a relentless war on this illegal practice and has made tremendous effort to protect the young industry, at least in these initial years before the industry grows and [is] in a position to compete with quality teas imported

from outside" (Mdee 2001, p. 20). Yet the tea industry in Tanzania can hardly be considered young. Tea production was introduced in 1902 and blending and packing in 1970. If, as many report, the imported tea is of secondary quality and consumed mainly by low income rural households, the problem will be exacerbated as the quality of Tanzanian tea rises. Less domestically produced tea of secondary quality will be available, boosting demand for lower quality imported tea.

East African tea producers have discussed the problem at the newly created East Africa Stakeholders Tea Committee, but no concrete solutions have been proposed. This is not surprising given the poor record on monitoring and enforcing bans and embargoes. As long as demand is strong and incentives remain on the supply side, attempts to end illegal imports are unlikely to succeed.

An alternative to the failed import ban would be to levy an import duty on tea of, say, 5 percent. This policy would have several benefits. Some tax revenues would be generated, the quality of imported tea could be monitored, accurate statistics could be collected to improve policymaking, legitimate jobs will be created for importers and traders, corruption will be reduced, and consumers could pay lower prices for tea. This policy action should be part of a comprehensive revision of the tax code, which would ideally include a move to a uniform import duty across the board.

The export ban of green leaf tea should also be lifted. Article 27 of the 1999 Tea Regulations states that "All green leaf tea produced in Tanzania shall be processed locally." While this restriction has no serious implications for the tea estates, it may prevent smallholders from selling their green leaf to processing facilities in neighboring countries. Admittedly, the prospects of exports of green leaf for processing in neighboring countries are slim at the moment. But if this is the case, one may well argue why have a regulation in place which is irrelevant for all practical purposes?

Taxation Is Too Complex and Rates Are Too High

Despite frequent amendments, the tax code remains unnecessarily complicated. There are too many taxes and the rates are too high. Consider the following comments:

- "An excessive and complicated tax regime is a continuing growing concern of the tea industry." (Ndunguru 2001, p. 6)
- "New land rent tax levied on developed and underdeveloped land is too high and discourages tea expansion … raising fuel prices caused by excessive tax on the product… Road toll tax on irrigation fuel is levied even though the fuel is not used for roads for vehicles." (Brook Bond Tanzania, Ltd.)
- "The number of taxes [is] continuing to pose a growing concern to the tea industry. Taxes such as car benefit tax, payroll levy, education levy are eroding the income from the activities of the tea industry by raising tea production costs, thereby affecting the performance of the tea industry." (Mdee 2001, p. 22)

- "still the traditional export crops are heavily taxed due to various fees …." (Government of Tanzania 1999, p. viii).

Taxes on the tea sector include a district produce cess of 5 percent of the farmers' price, stamp duty of 1.2 percent fob, withholding tax of 2 percent fob, 3.5 percent Tea Board and research fee, corporate tax, property tax, VAT, and a service levy of 0.3 percent of VAT net turnover. The 2 percent export tax was abolished in July 1998, and the agricultural land tax was reduced from 600 Tanzanian shillings (Tsh) a hectare to Tsh 200 a hectare (as of November 2001, the exchange rate was 900 Tsh to the US dollar.) The duty on imported green and black tea is 25 percent, down from 30 percent before July 1998. The VAT on imported black tea is 20 percent, down from 25 percent before July 1998. The reduction in import duties and in the VAT on imported tea is irrelevant, however, because tea imports are prohibited.

The Government of Tanzania (1999) tax report, which undertook an extensive survey of the tax structure of the export crops, was unable to calculate the effective tax on tea estates because it did not have a detailed representative sample. One way to calculate the tax on tea estates is to work backward from tax payments. According to industry estimates, tea estates paid Tsh 1.2 billion to the government in taxes and levies in 1999 (equivalent to $1.4 million at Tsh 800 per $1). The estates produced more than 20,000 tons of made tea in 1999, which fetched an average of $1.18 a kilogram in the Mombasa auction. That means an ex-factory price of about $1.00 a kilogram, or approximately $20 million in gross revenue, implying an 8 percent tax on gross revenue. Assuming a 25 percent profit margin, the effective tax rate exceeds 30 percent.

Tea producers are subject to as many as 44 taxes, levies, and licenses. The payroll levy on tea estates, a major financial burden, discourages employment by effectively increasing the wage rate. High tax rates can lead to tax avoidance and corruption. And administering the taxes takes a substantial amount of staff time for producers as well as the government. A recent government (2000) report estimated that the nominal protection coefficient on the tea sector had increased from –55.2 in 1990-93 to –77.0 in 1994-99, with the negative sign indicating taxation. Thus taxes are not being eliminated or reduced; they are just changing names. Streamlining the tax code and reducing the tax burden should be a priority.

The Tea Board and the Ministries Have Too Much Discretionary Power

Despite the restructuring of the tea sector, both the Tea Board and the Ministry of Agriculture and Food Security still have too much discretionary power. For example, Article 22 of the Tea Act of 1997 indicates that the Tea Board may refuse licenses on "any ground which may appear to it to be sufficient." Article 29 of the 1999 Tea Regulations states that "the Board shall, in issues relating to quality in respect of domestic and ex-

port market, be the final arbitrator."

Wielding this excessive power, the Board has denied licenses for imports of made and packed tea, a questionable policy on economic grounds and one that entirely ignores issues of consumer welfare. For example, Mdee (2001) says about the import ban (p. 20): "One of the functions of the Tea Board of Tanzania is to control the export and import of tea for the benefit of the farmers and the tea industry as a whole." The document is silent about the benefits to tea consumers. Regulations and trade policy decisions affecting the welfare of groups other than tea producers should not be the sole responsibility of the Tea Board but should be made at a higher and broader level.

Penalties for violating Tea Board regulations are high—often as high as $ 2,000, which is 10 times per capita GDP (equivalent to a fine of $300,000 in the United States). Despite such stiff penalties a third of Tanzania's domestic tea demand is supplied by "prohibited" imports, implying that tea smugglers are not caught (the ban is ineffective) or are caught and not fined (the ban spawns corruption.)

In addition, violations of regulations are frequent. For example, the 1997 Tea Act (p. 13) stipulates that the Tea Association has the right to nominate two members to its board: "The Board of Directors shall consist of … (d) two other members representing the interests of licenses nominated by the Tea Association of Tanzania amongst farmers or manufacturers." However, as the government review of the agriculture sector noted (2000, p. 124): "The President did not respect this legal provision in a reshuffle of the [Tea and Sisal] Crop Board members in June 1999. Because of that reshuffle most of the members of the Coffee, Cotton, and Cashewnut Associations, who were 'a titre personnel' member of the crop Boards, lost their membership of the Board as well."

Finally it is unclear whether the industry still needs two regulatory entities. When reforms begun, the formation of the Smallholders Tea Development Agency was rationalized on the basis that it will supervise the transition process of the smallholder sector, including the privatization of the tea factories. Now that the transition period is over, the two regulatory bodies should be merged into one entity.

Infrastructure Is Inadequate

Inadequate infrastructure has been a major reason for the tea sector's poor performance and an impediment to development of the sector. Because green leaf must be processed within six hours of plucking, rehabilitation of feeder roads used for transporting green leaf from farms to factories must be given priority. But most of the infrastructure problems are not specific to the tea sector and need to be dealt with at a broader level (poor quality of the national road system, frequent disruptions in electricity supply).

While improvement of infrastructure of a public goods nature needs public sec-

tor involvement, some infrastructure problems need to be resolved by the private sector, such as rehabilitating tea factories, building new ones, replacing transport equipment, and the like. Here, the public sector should be involved only in monitoring, regulating, and disseminating information. Creation of a new tea auction, proposed by some, seems unnecessary since the Mombasa auction serves well the interests of the entire East African tea producing community.

V. CONCLUSION

The tea sector is important to the Tanzanian economy. It offers employment to more than 50,000 families. Reform of the sector has led to considerable improvements. Privatization of two nationalized tea estates and restructuring of the research system appear to have been successful. Splitting off the Tea Board's marketing and trade responsibilities from its regulatory functions was a step in the right direction. Production of made tea rose from about 20,000 tons in 1990 to an average of 24,000 tons during 1999/2000 to 2001/02.

But much more is needed. Smallholders account for almost half the land allocated to tea but their output share is less than 10 percent. By comparison, Kenya's smallholder sector contributes 62 percent to tea output, achieves yields of more than 1,100 kilogram per hectare, well above Tanzanian smallholders' yields of 200 per hectare; and its tea is priced an average of 25 percent higher than Tanzanian tea. Realizing the considerable potential of the smallholder tea sector requires reforms in trade policy, taxation, along the reduction of power and merging of the two regulatory bodies, the Tea Board and the Smallholders Tea Development Agency.

BOX 1. TEA ESTATE PRODUCTION—BROOKE BOND TANZANIA, LTD.

Brooke Bond Tanzania, Ltd. (BBT) is a subsidiary of Unilever and part of its eight-country group of tropical plantations. It is located in Mufindi in the Southern Highlands, approximately 500 kilometers southwest of Dar es Salaam. Mufindi is 1,800–2,000 meters above sea level, an ideal altitude for tea production. BBT employs 7,000 workers, 5,000 of whom and their families are housed in small communities on the estates; the other workers live in nearby villages. All employees and their dependents (approximately 35,000 people) receive free medical treatment. The company maintains 44 day-care centers to look after the 1,100 children during working hours, and it recently built an English medium primary school. It also has a program to provide books and other teaching materials to local primary schools within the plantation. The company has a work place HIV/AIDS program that provides information and support to its employees.

BBT has a 99-year land lease arrangement from the government for 19,682 hectares—a typical land arrangement in Tanzania. The tea plantations cover 3,030 hectares. Some 1,405 hectares are reserved for eucalyptus and gum trees, which are cut on an eight-year rotation and used as firewood at the factories. About 6,000 hectares are covered with grass and other vegetation, swamps, and steep land, and more than 7,000 hectares are natural forest. Most of BBT's area under tea is irrigated. Its average yield currently exceeds 3 tons per hectare, much higher than the national estate average of 2.2 tons. According to the company's management, BBT's irrigated tea area "represents the largest known area of tea under overhead irrigation anywhere in the world."

During the past five years BBT produced an average of 8,840 tons of made tea, accounting for almost 40 percent of Tanzania's tea output. The tea was processed in three company-owned factories: 5,224 tons in Lugoda, 3,478 tons in Kilima, and 567 tons in Kimwele. More than 98 percent of BBT's tea is exported. It used to be marketed though the London auction but is now either exported directly (mainly to Pakistan and the United Kingdom) or indirectly through the Mombasa auction. The company also processed about 260 tons of tea a year from nearby smallholders. During 1999 BBT paid Tsh 551 million in taxes and levies.

Source: Brooke Bond Tanzania, Ltd.

TABLE 1

PRODUCTION AND YIELDS OF MADE TEA BY SECTOR, 1975/76–1999/2000

	PRODUCTION					YIELDS	
	Estates		Smallholders		Total	Estates	Smallholders
	Tons	Share	Tons	Share	Tons	Kilograms per hectare[b]	
1975/76	10,890	81%	2,614	19%	13,504	1,200	300
1980/81	12,864	84%	2,469	16%	15,333	1,400	400
1985/86	12,050	71%	4,900	29%	16,950	1,300	545
1990/91	13,695	76%	4,397	24%	18,092	1,500	490
1995/96	18,037	91%	1,730	9%	19,767	1,900	190
1998/99	22,473	95%	1,207	5%	23,680	2,368	136
1999/2000[a]	20,074	92%	1,806	8%	21,880	2,115	198

a. The 1999/2000 data appear to be preliminary as they differ substantially from the figures reported by the Tea Board of Tanzania in table 5.

b. The calculation of smallholder yields is based on the total smallholder tea area some of which may been abandoned, thus underestimating the true yield.

Source: Tanzania Smallholders Tea Development Agency.

TABLE 2

PRINCIPAL INSTITUTIONS INVOLVED IN THE TANZANIAN TEA SECTOR

INSTITUTION	ENTITY	MAIN FUNCTIONS AND RESPONSIBILITIES
Ministry of Agriculture and Food Security	Government	Supervises the sector. Acts as liaison between the sector and the legislature and provides legal and policy guidelines.
Tea Board of Tanzania	Statutory body	Created under the 1997 Tea Act and the subsequent tea regulations of 1999, it regulates the tea industry. Collects the 2.5 percent cess, 1.5 percent for research and 1 percent for its own operating expenses. Issues production, import (currently banned), blending, and packing licenses. The private sector is represented on the board.
Tanzania Smallholders Tea Development Agency	Statutory body	Created under the 1997 Tea Act and the subsequent tea regulations of 1999, it promotes the interests of the smallholders. Advises and makes recommendations to the Ministry of Agriculture and Food Security. Promotes and solicits financing for the five-year smallholders tea expansion program. Supervises the privatization and liquidation of the tea factories formerly owned by the Tea Authority.
Area Tea Growers Associations	Private sector	Established under the 1999 tea regulations, these associations are registered under company ordinance and promote smallholder interests by soliciting project finance from the five-year smallholders tea expansion program. As of November 2001 there were associations in the following regions: Usambara, Rungwe, Mufindi, Kagera, Lupembe.
Tea Association of Tanzania	Private sector	Established in 1943, it promotes and protects the interests of the industry as well as influences legislative and policy decisions. Its membership consists of tea producers, packers and blenders. The Tanzania Smallholders Tea Development Agency is a member, representing smallholders. The Tea Association of Tanzania is a member of the East Africa Tea Trade Association.
Tea Research Institute of Tanzania	Non-profit organization	Established in 1996 (commenced operations in 1998), it supports the continued development of the tea industry, both large-and small-scale producers, with appropriate high quality, cost effective research and technology transfer. It is a limited company with a 10-member board representation from estates, smallholders, and the government. Its funding comes from the 1.5 percent cess administered by the Tea Board.
East Africa Stakeholders Tea Committee	Private sector	Addresses problems of the tea industry common to all East Africa tea producers, such as intraregional trade issues.
East Africa Tea Trade Association	Private sector	Established in 1956, its objective is to promote the interests of tea trade in East Africa. It compiles and distributes tea price and trade statistics and facilitates operations of the Mombasa tea auction. Its membership consists of some 300 entities including tea producers, buyers (exporters), brokers, tea packers, and warehousers.

Source: Author's interviews; Ndunguru (2001); East Africa Tea Trade Association; and Tanzania Smallholders Tea Development Agency.

TABLE 3

AVERAGE PRICES AT THE MOMBASA AUCTION BY COUNTRY OF ORIGIN, 1996–2001

	TANZANIA	KENYA	UGANDA	MALAWI	BURUNDI	RWANDA	AVERAGE[a]
US dollars per kilogram							
1996	1.10	1.45	1.16	1.27	1.36	1.35	1.28
1997	1.70	2.03	1.80	1.63	—	1.96	1.82
1998	1.22	1.97	1.36	1.28	—	1.39	1.44
1999	1.18	1.86	1.29	1.06	1.65	1.52	1.43
2000	1.58	2.11	1.59	1.17	1.93	1.86	1.71
2001[b]	1.23	1.64	1.14	1.06	1.30	1.48	1.31
Tanzania's premium(+)/discount(-) (percent)							
1996	0	-24	-5	-13	-19	-19	-14
1997	0	-16	-6	+4	—	-13	-7
1998	0	-38	-10	-5	—	-12	-16
1999	0	-37	-9	+11	-28	-22	-17
2000	0	-25	-1	+35	-18	-15	-7
2001[b]	0	-25	+8	+16	-5	-17	-6

— not sold at the auction.

a. Arithmetic average.

b. As of November 5, 2001.

Source: International Tea Committee and Tea Brokers East Africa, Ltd. 2001.

TABLE 4

DESTINATIONS OF TANZANIAN TEA EXPORTS, 1970–99 (TONS)

	1970	*1980*	*1990*	*1995*	*1996*	*1997*	*1998*	*1999*
EUROPE								
United Kingdom	5,979	9,355	5,424	4.468	6,169	8,419	8,682	8,093
Germany	—	129	394	320	497	427	353	474
Ireland	219	33	—	61	51	13	73	108
Netherlands	200	286	150	154	92	61	187	110
Other Europe	68	26	15	56	22	198	264	412
NORTH AMERICA								
Canada	208	333	27	355	240	322	252	203
United States	147	483	71	988	521	396	609	988
ASIA								
Pakistan	—	455	7,007	5,451	5,716	4,070	4,224	3,350
Singapore	—	—	—	24	156	317	904	243
Sri Lanka	—	—	—	11	23	116	201	34
Other Asia	—	—	—	57	213	150	201	520
AFRICA								
Kenya[a]	119	—	140	8,163	4,186	4,066	5,635	6,268
Somalia	—	102	532	100	53	50	—	—
South Africa	—	—	—	—	58	146	249	271
Sudan	—	641	1,083	126	331	181	240	139
Other Africa	56	—	—	68	115	50	22	125
OTHERS								
Australia	22	—	—	190	12	21	122	—
Rest of the world	37	1,326	65	—	13	3	—	26
Total	7,054	13,290	14,908	20,511	18,468	19,006	22,218	21,364

— No exports recorded.

a. Tea exported to Kenya represents sales at the Mombasa tea auction.

Source: International Tea Committee.

TABLE 5

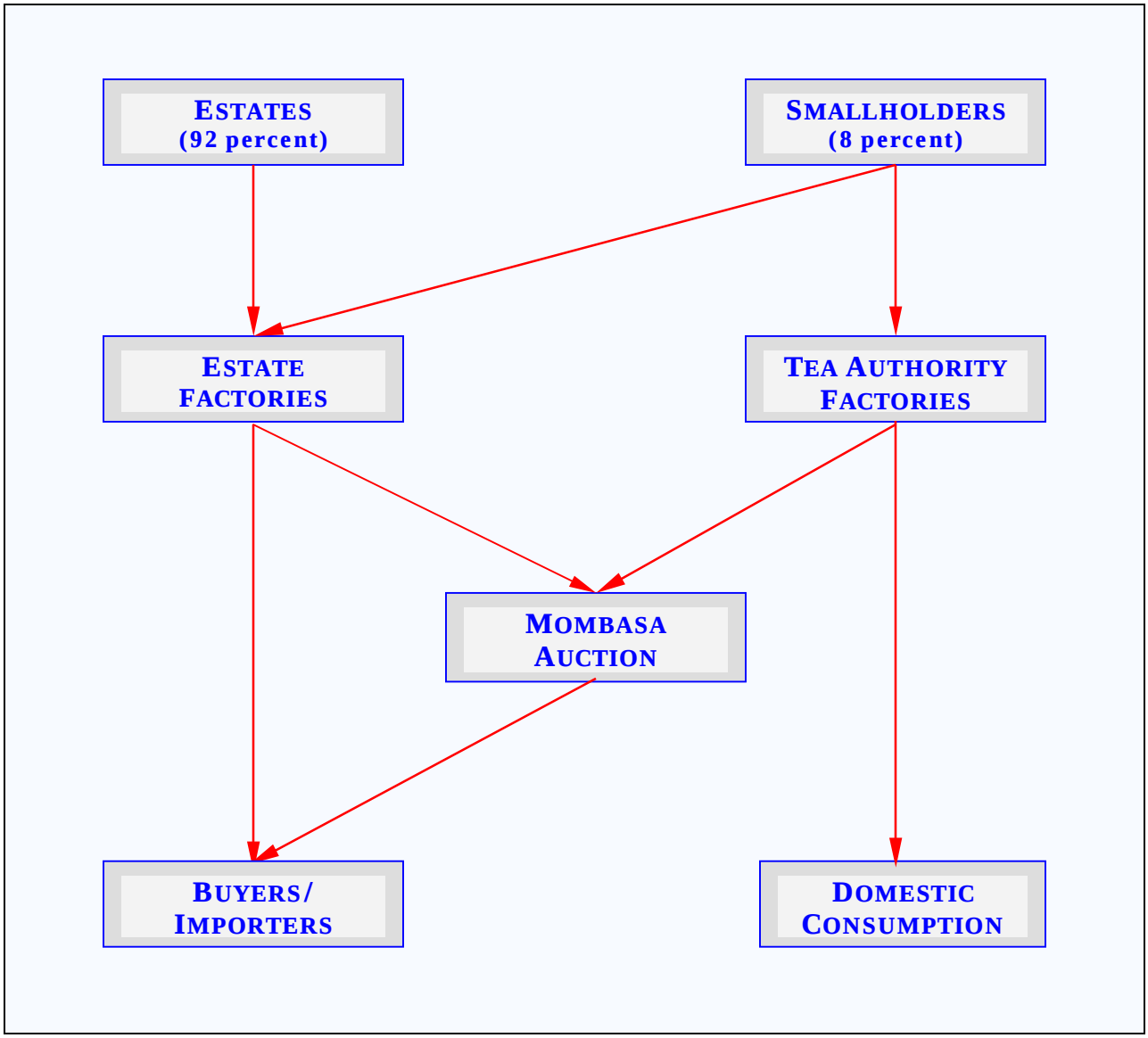
PRODUCTION OF MADE TEA BY COMPANY, 1996–2000

	1996	*1997*	*1998*	*1999*	*2000*
PRODUCTION (TONS)[a]					
Tea Authority (5)	2,341	1,879	1,423	1,327	1,887
Brooke Bond (3)	7,326	10,157	9,267	9,273	9,517
Mufindi Tea Company (2)	3,044	4,151	4,871	4,153	3,610
East Usambaras Tea Company (2)	2,649	2,159	3,964	3,613	3,606
Tanwat (1)	645	8556	1,457	2,305	2,778
George Williamson (3)	1,967	2,584	2,746	2,237	1,875
Bombay Burma Co-Op (2)	365	448	600	477	525
Ralli Estates (2)	1,421	818	549	241	99
Total	19,768	23,051	24,876	23,626	23,897
SHARE (PERCENT)					
Tea Authority	12	8	6	6	8
Brooke Bond	37	44	37	39	40
Mufindi Tea Company	15	18	20	18	15
East Usambaras Tea Company	13	9	16	15	15
Tanwat	3	37	6	10	12
George Williamson	10	11	11	9	8
Bombay Burma Co-Op	2	2	2	2	2
Ralli Estates	7	4	2	1	0
Total	100	100	100	100	100

a. Numbers in parentheses are the number of working factories.

Source: Tea Board of Tanzania.

Figure 1: Tea Production and Marketing Structure in Tanzania



Notes: The numbers in parentheses are approximate production shares for the 1999/2000 season. The Tea Authority factories are in private hands.
Source: Author's interviews.

APPENDIX A: THE WORLD TEA MARKET

Tea Production and Processing Methods

Modern tea comes from *Camellia sinensis*, native to China and India. In today's commercial tea trade there are three main varieties of *Camellia sinensis*: China, Assam, and Cambodia, each named for the area in which it was first grown commercially. The China variety is a three-meter high hardy bush with a useful life of 100 years. The Assam and Cambodia varieties, which are genetically similar, are very tall single stem trees with a commercial life of 40 years. The mature leaves of tea plants differ by variety in form and size and range from 3.8 to 25 centimeters long. Although tea can be grown in hot and humid tropical climate, the best tea is grown at altitudes between 900 and 2,000 meters.

Plucking tea is a laborious process with pluckers averaging 40-50 kilograms of green per day. Sometimes, wages amount to 60 percent of cultivation costs or 40 percent of estate expenses as a whole. Green leaf is processed into made tea at tea factories. The conversion factor between green leaf and made tea varies (in Tanzania, for example, 4.8 kilograms of green leaf are required for 1 kilogram of made tea). Made tea is then blended and packaged (packed tea). Three processing methods are used to convert green leaf to made tea of three corresponding types: black, green, and oolong (Forrest 1985).

Black tea: Tea leaves are spread on racks to dry and then put through a machine that breaks up the leaf cells, frees the oils, and ejects a twisted lump of leaves. These are sent to a fermenting room, spread thinly, and left to absorb oxygen. The leaves are then exposed to a continuous blast of hot dry air for 15–29 minutes, which turns them black. Black tea accounts for three-quarters of global made tea output and is supplied mostly by East African and South Asian countries. Depending on the type of machinery used to break up the leaves, black tea is further distinguished as orthodox or CTC (cutting, tearing, and curling). Orthodox tea is supplied mainly by Asia and some Latin American countries. Africa produces exclusively CTC tea. Of the 1.83 million tons of black tea produced globally in 1994, 1.06 million tons were CTC.

Green tea: Green tea has a less processed flavor than black tea. The leaves are steamed and heated immediately after plucking. Because the leaves are dried without going through fermentation, they remain green. After being separated by grade, the leaves are packed in chests lined with aluminum foil. Green tea, which accounts for a quarter of global tea output (680,000 tons in 2000), is supplied primarily by China (500,000 tons, some 150,000 tons of which is exported); the rest is supplied by Japan, Vietnam, and Indonesia.

Oolong tea: Oolong tea is traditionally prepared in South China and Taiwan, China, from a special form of China tea plant — the chesima. It has very large leaves and a distinct flavor. Preparation is similar to black tea but with a much shorter fermen-

tation process. Oolong teas are often scented with flowers. Oolong accounts for only a small fraction of the global tea market.

While people often refer to almost anything steeped in hot water as "tea" only *Camellia sinensis* is properly given this designation. "Teas" made with herbs and berries are more properly called tisanes or infusions. Leaves from several other plants are consumed like tea. For example, Paraguay tea, often called yerba mate, is made from the leaves of a species of holly found primarily in Argentina, Brazil, and Paraguay. The Indians of North Carolina prepared a tea called *yaupon* from the leaves of another holly-like tree. Trinidad tea is made from the leaves of the pimento or allspice tree.

The Global Balance

Tea is produced in both tropical and temperate zones, primarily in developing countries. Asia accounts for about three-quarters of global production, Africa for half the remainder, and several Middle Eastern and Latin American countries for the rest (table A1). India (28 percent) and China (24 percent) produce more than half the world's tea, followed by Sri Lanka (10 percent) and Kenya (8 percent). Before Word War II tea production (excluding China) was dominated by India (38 percent), Sri Lanka (22 percent), Indonesia (16 percent) and Japan (11 percent). Africa and Latin America accounted for only 2 percent of global output. India and China are also the dominant tea consumers, together consuming more than 1 million tons. World production was close to 3 million tons in 2000 and valued at $4 billion at auction prices. Growth in tea production, as high as 4 percent in the 1970s and 3 percent in the 1980s, slowed to 1.6 percent in the 1990s.

TABLE A1: GLOBAL BALANCE IN THE TEA MARKET: 1960-2001

About 45 percent of global production is traded internationally. Sri Lanka (22 percent), China (18 percent), Kenya (16 percent), and India (16 percent) account for almost three-quarters of world exports. The pattern and concentration of tea imports have changed considerably since 1970, when the United Kingdom accounted for almost 40 percent of world imports (234,000 tons). By contrast, the dominant importer today, the Russian Federation, accounts for just 13 percent of world imports. The market concentration index for imports thus fell from 0.16 in 1970 to 0.05 in 2000. The concentration index for exports fell as well, from 0.16 to 0.14. The production concentration index remained unchanged at 0.14. The concentration index used here, the Herfindahl index, is defined as the squared sum of shares of all countries. Unity indicates that a single country accounts for all, say, exports while a value close to zero indicates that a large number of countries have equal shares.

Tea Prices

Unlike most primary commodities whose prices are determined in futures exchanges, tea prices are established at auctions. No commodity exchange has ever traded tea fu-

tures. The feasibility of launching a tea contract has been examined repeatedly (UNCTAD 1984). A Tea Futures Study Group was set up in London in 1971 to study its feasibility, but a tea contract was never launched. Reasons include the numerous varieties of tea, the rapid deterioration of tea stocks, and the demanding requirements for determining quality (tea requires tasting, a cumbersome process for settling futures contracts). The Tea Board of India reexamined the feasibility of establishing a futures exchange in either Calcutta or Guwahati, but it seems to have come to the same conclusion as other groups that have studied the issue (UNCTAD 2001, p. 191).

TABLE A2: TEA SOLD AT AUCTIONS: 1965-1999

Between 35 and 40 percent of world tea output is traded at auctions in tea producing countries. India has six auctions, but the two largest auctions are in Colombo, Sri Lanka, and Mombasa, Kenya (table A2) (India also operates an on-line auction, http//www.teaauction.com). Other producer country auctions are held in Chittagong, Bangladesh; Jakarta, Indonesia; and Limbe, Malawi. The Colombo and Mombasa auctions trade tea for export, and their prices are considered the world price indicators. All East African tea is exported directly to consuming countries or sent to the Mombasa auction. During 1999, for example, 211,000 tons of made tea were sold at the Mombasa auction (table A3).

TABLE A3: SALES AT THE MOMBASA AUCTION

Auctions in consumer countries, which operated during the 1970s and 1980s, have been less successful, with the exception of the London auction, once the world's most influential, which closed in 1998. Until the early 1970s London was the world's dominant tea auction. London's last auction was on June 29, 1998, bringing to a close a 319-year-old tradition. Tea auctions had been held in London since the East India Company's first auction in 1679. Aside from brief interruptions during the war years auctions had been held every week since 1864. Volumes at the auction were so large that during the early 1900s tea of different origins was traded on specific days: Indian teas on Mondays and Wednesdays, Ceylon teas on Tuesdays, and China, Java, and other teas on Thursdays. Most Indian auctions trade tea for domestic consumption.

The Mombasa Tea Auction

Kenya's tea export auction system began in November 1956 in Nairobi under the auspices of the East African Tea Trade Association. It initially traded small quantities of secondary grade teas but following increased interest by producers and buyers, the auction moved to Mombasa in 1969 and started trading main grades of tea. Auctions have been held every Monday since then. The East Africa Tea Trade Association still runs the auction; it has more than 300 members, including producers, buyers, brokers, packers, and warehousers.

A turning point for the Mombasa auction came on October 26, 1992, when, following relaxation of foreign exchange controls, the first transaction took place in US dollars. With other major tea auctions trading in local currency, this change probably accounts for Mombasa's position as the world's dominant tea auction. The auction trades most of the tea produced in East Africa (see table A2).

Main grades and secondary grades are traded in separate auction rooms. The sessions, which begin at 8:30 and 9:30, typically last until the early afternoon, but may go as late as 3:00 p.m. Before the sessions each of the 11 brokerage houses offering tea on behalf of sellers distributes the catalog of tea offerings with all relevant characteristics (origin, quantity, weight, grade, and method of packing.) The auctioneer representing the brokerage house announces the lot number and the bidding begins. If the seller wishes, the auctioneer announces a reserve price. Bids increase at one cent increments and the lot is sold to the highest bidder. Prices vary considerably, even within grade and quality (see table A4). For example, the lowest and highest recorded prices for grade DUST1 on November 05, 2001, were $0.76 a kilogram (plainer quality) and $2.07 a kilogram (best available quality). Only a few of the 25–30 buyers present at each session actively bid on each lot. About 10 percent of lots go through intensive competitive bidding that raises the final price by as much as 15 percent above the initial offer. All transactions are finalized within 10 working days. Some 5–10 percent of lots are not sold.

TABLE A4: PRICE RANGES AT THE MOMBASA AUCTION

Lots average 3,000 kilograms, with a range from 1,500 to 6,000 kilograms. Large lots may be shared by as many as three buyers. Tea sold at the auction is stored at the 18 auction-certified warehouses, most in Mombasa and some in Nairobi. Two weeks before the auction brokerage houses distribute tea samples to prospective buyers. A 4-kilogram sample is taken from each lot and divided into samples of 50–200 grams and distributed to potential buyers from around the world. A tea market report is released within a few days of the auction, with all relevant information on origin, quality, quantity, and price of tea sold. The report also includes information on offerings in the next three sessions.

Today, the Mombasa auction is a price leader. In an analysis of monthly prices in the three major auctions (Mombasa, Colombo, and Calcutta) from January 1990 to September 2001, an econometric model found considerable comovement of prices between Mombasa and Colombo but no comovement between Calcutta and the other two. The independent movement of Calcutta prices reflects the high seasonal nature of Indian tea. For example, Calcutta auction prices increase by more than 50 percent between March and July as tea from new crops replaces old. Price signals were transmitted at a much higher speed from Mombasa to Colombo than the other way around. About 26 percent of any price change in the Mombasa auction price shows up within the same month in the Colombo auction price, and 17 percent of the remaining gap is eliminated

in each subsequent month. In the reverse direction the respective transmission rates are 13 percent and 6 percent. These results were based on an error-correction model. (The first difference of one price (Δp_t^1) was regressed on the first difference of the other price (Δp_t^2) and the lagged price gap ($p_{t-1}^1 - p_{t-1}^2$); the estimate of the first parameter gives a measure of the short run adjustment while the estimate of the second parameter gives the speed at which the two prices converge).

TABLE A5: TEA PRICES: 1960-2002

During the 1990s tea prices at the Mombasa auction fluctuated between $1.45 a kilogram (June 1995) and $2.81 a kilogram (February 1998) (table A5). Price fluctuations were similar at the Colombo auction. Prices in all auctions were relatively stable between 1991 and 1995, remaining close to the average of $1.60 a kilogram, but in 1996 prices in the Mombasa auction doubled within an 18-month period—a spike seen in several other commodities as well. Prices plummeted following the East Asian financial crisis of 1997–98 and the strengthening of the US dollar, plunging by almost half between February and May 1998, to $1.56 a kilogram in the Mombasa auction—close to their pre-1996 average (figures A1 and A2). Prices have remained at that level since then.

FIGURE A1: MONTHLY TEA PRICES: JAN 1990-DEC 2002

FIGURE A2: ANNUAL TEA PRICES: 1960-2002

A Liberal International Policy Environment

The tea market is almost intervention-free. The low concentration pattern of exports and imports may have contributed to that. Only country-specific trade barriers are in place, primarily import tariffs well below World Trade Organization committed maximum rates.

Unlike the markets for commodities such as cocoa, coffee, and rubber, there has been no UN-backed international price stabilization scheme or stockholding mechanism in the tea market in the post-World War II period. There were two voluntary supply restriction schemes in place (Wickizer, 1951). The first, 1920-21, grew out of the sharp price decline of 1920 and was led by India and Sri Lanka (then Ceylon). A second restriction went into effect in 1930, led by the same countries and for the same reason. A five-year International Tea Agreement was launched in April 1933 to support tea prices through export quotas, backed by India, Indonesia, and Sri Lanka. The agreement was in response to the collapse of tea prices during the great depression—they declined by 70 percent between 1927 and 1932 (Sarkar 1972). The agreement succeeded in maintaining prices at about 80 percent of their pre-depression levels and was renewed for a second five-year period. After World War II tea prices increased considerably, so the effect of the agreement was nominal, and so the agreement was not renewed again. An infor-

mal tea arrangement was agreed among major tea producers in 1969 through voluntary export quotas, but it lasted only a year. The feasibility of a tea agreement was reexamined by the Food and Agriculture Organization in 1974 but was not pursued further.

High import tariffs are applied by three net tea exporters—Kenya, 60 percent; Bangladesh, 45 percent; and China, 30 percent—and by four major net tea importers—Pakistan, 45 percent; Egypt, 30 percent; Morocco, 25 percent; and Japan, 17 percent—High import tariffs in tea exporting countries usually protect local producers, blenders, and packers. Russia imposes a 20 percent import duty on packed tea to encourage domestic packing (the duty on bulk tea is just 5 percent). However, Russia's main suppliers (India, Sri Lanka, China, and Indonesia) receive preferential treatment, with their duties set at 75 percent of the base level, while imports from low-income countries (including Bangladesh) are duty free. Many countries apply sales taxes and value-added taxes (VAT), typically of 15 to 20 percent.

Moderate Growth in the Long Term

Because most tea is consumed in low- and middle-income countries, which have higher income elasticities for food than do high income countries, the long-term outlook for tea depends on income growth in low- and middle-income countries. Akiyama and Trivedi (1987) estimated income elasticities from a high of 0.98 for Egypt to a low of 0.10 for Canada with an average of 0.60. With developing country economies expected to grow 4.5 percent annually during the current decade (World Bank 2001), an average income elasticity of 0.60 means that tea demand would grow 2.7 percent a year. This is slightly lower than the consumption growth rate during the 1980s, but well above that of the 1990s.

In another study of the tea market Maizels, Bacon, and Mavrotas (1997) report income elasticities ranging from zero (United States) to 3.75 (Kenya). Their unweighted average slightly exceeds unity. A unitary income elasticity would imply a 4.5 percent annual growth of demand, an exceedingly optimistic outlook, unless growth of low- and middle-income countries turns out to be much lower than the hypothesized 4.5 percent. In a much earlier study, Singh and others (1977) report income elasticities for tea demand of 0.91 (India), 1.35 (Pakistan), and 1.20 (Kenya). For high-income countries they report an average of 0.43. Their econometric analysis is based on 1954-66 data.

Less optimistically, the Food and Agriculture Organization (FAO 2001) concludes that global tea demand for the current decade is unlikely to exceed 1 percent, which is closer to demand growth during the 1990s. Most demand growth is expected to come from increased imports by the Commonwealth of Independent States (CIS)—mainly Russia — and Pakistan and increased demand for domestic production in India (table A5). CIS tea imports, which grew an average of 2.7 percent a year during the 1990s, are expected to grow 3.1 percent (imports totaled 224,000 tons in 2000). Pakistan's

imports, at more than 100,000 tons in 2000, are expected to increase 2.9 percent annually in this decade. India's domestic consumption, which grew 1.8 percent a year in the 1990s, is expected to grow twice as fast in this decade.

On the supply side the FAO estimates that Kenya will increase tea output by 2.3 percent annually (from 236,000 tons in 2000 to 304,000 tons in 2010) and exports by 2.6 percent (table A6). China's exports of green tea are expected to grow 2.7 percent a year, from 156,000 tons in 2000 to 210,000 tons in 2010. Tanzania's tea exports, which grew 3.8 percent a year in the 1990s, are projected to grow 2.2 percent this decade, while output is expected to grow 1.7 percent a year, below the 2.4 percent of the 1990s.

Regarding the methodology of these projections, the Food and Agriculture Organization (FAO 2001, p. 1) describes it as follows: "The production and trade projections presented in this document are derived from a dynamic series model of the world tea market. The model quantifies key market relationships on the basis of observations on the past behaviour of volumes produced and traded, prices and population and income growth. This projection methodology represents a development of that used to provide projections for previous Intergovernmental Group meetings. By exploiting additional information concerning the economics of market behaviour the revised methodology should provide a sounder basis for projections, and allow a wider range of alternative scenarios to be exploited."

TABLE A1

GLOBAL BALANCE IN THE TEA MARKET, 1960–2001 (THOUSANDS OF TONS)

	1960	*1970*	*1980*	*1990*	*1997*	*1998*	*1999*	*2000*	*2001*
PRODUCTION									
India	321	418	570	720	810	874	824	846	854
China	153	163	304	540	613	665	676	683	695
Sri Lanka	197	212	191	234	277	281	284	307	295
Kenya	14	41	90	197	221	294	249	236	295
Turkey	6	33	96	131	140	178	171	130	138
Indonesia	46	64	99	145	154	167	161	159	169
Japan	78	91	102	90	91	83	89	89	90
Iran	10	20	32	44	60	60	60	50	50
Vietnam	5	15	22	40	52	57	65	70	80
Argentina	6	26	21	43	55	50	55	60	55
Bangladesh	19	31	40	46	51	56	46	53	57
Malawi	12	19	30	39	44	40	38	42	37
Uganda	5	18	2	7	21	26	25	29	33
Tanzania	4	8	17	18	22	24	23	24	25
Zimbabwe	1	4	10	17	17	18	20	22	22
Taiwan, China	17	28	24	22	24	23	23	20	20
World	795	1,286	1,848	2,516	2,736	2,987	2,900	2,918	3,012
EXPORTS									
Sri Lanka	186	208	184	215	257	265	263	280	289
China	49	58	108	195	202	217	200	228	250
Kenya	12	42	75	170	199	263	242	217	258
India	193	200	224	209	201	208	189	205	180
Indonesia	36	41	68	111	67	67	99	106	100
Argentina	3	19	34	46	56	59	52	50	52
Malawi	10	18	31	43	49	41	43	38	41
Uganda	4	15	1	5	18	23	20	26	30
Tanzania	3	7	13	15	19	22	21	22	22
Zimbabwe					18	23	22	26	30
World	530	752	859	1,132	1,203	1,303	1,259	1,330	1,389
NET IMPORTS									
Russia	20	20	56	235	148	143	153	151	144
United Kingdom	225	234	186	142	151	146	137	133	137
Pakistan	0	29	64	106	87	112	108	111	107
United States	52	62	83	77	81	93	93	88	97
Egypt	20	30	54	79	78	65	73	63	62
Japan	2	16	16	33	52	45	49	58	60
Iraq	18	20	37	28	23	50	42	49	58
Morroco	12	14	18	29	35	41	35	42	38
Iran	10	6	21	50	36	33	39	40	38
Poland	4	8	24	21	30	29	28	28	31
Afghanistan	6	12	15	11	35	26	17	23	29
World	534	638	856	1,092	1,198	1,236	1,223	1,240	1,285

Source: Food and Agriculture Organization and International Tea Committee.

TABLE A2

TEA SOLD AT AUCTIONS, 1965–99 (THOUSANDS OF TONS)

Auction	*1965*	*1970*	*1975*	*1980*	*1985*	*1990*	*1995*	*1999*
Guwahati	—	—	31	63	120	141	130	145
Calcutta	153	154	172	132	179	129	93	89
Siliguri	—	—	—	17	87	90	76	87
Color	—	—	16	16	24	37	54	79
Cochin	49	63	61	70	62	51	54	52
Coimbatore	—	—	—	2	29	32	18	20
India total	*202*	*217*	*280*	*299*	*501*	*481*	*424*	*473*
Colombo	125	168	193	178	197	217	229	260
Mombasa	8	12	25	45	74	124	174	211
Chittagong	26	30	24	36	38	43	43	39
Jakarta	—	—	18	38	39	33	13	24
Limbe	—	—	4	7	11	21	11	13
London	162	109	89	95	55	44	24	—
All auctions	*523*	*536*	*634*	*689*	*916*	*963*	*919*	*1,020*
World production	944	1,286	1,290	1,848	2,290	2,516	2,521	2,897
Auction share (%)	55	42	49	38	40	38	37	35

— No auction.

Source: International Tea Committee.

TABLE A3

SALES AT THE MOMBASA AUCTION

	Annual sales (tons)			Sales on November 05, 2001		
	1997	*1998*	*1999*	*Packages*	*Tons*	*Price*
Kenya	144,877	212,620	181,967	57,328	3,841	1.49
Uganda	16,169	21,166	19,863	8,340	501	1.08
Tanzania	3,223	4,634	4,178	5,377	320	1.20
Rwanda	1,399	2,531	1,729	3,500	211	1.43
Burundi	—	—	1,667	1,320	80	1.19
Malawi	286	1,116	598	—	—	—
Congo, D. R.	658	795	418	—	—	—
Madagascar	—	—	366	—	—	—
Zimbabwe	5	704	—	—	—	—
Total	166,618	243,566	210,786	75,865	4,953	1.42

— No auction.

Source: International Tea Committee and Tea Brokers East Africa, Ltd. 2001.

TABLE A4

PRICE RANGES AT THE MOMBASA AUCTION, SALE NO. 44 (US DOLLARS)

Quality	BP1	PF1	PDUST	DUST1
Best Available	1.80-1.90	1.62-1.80	1.86-2.00	1.95-2.07
Good	1.65-1.77	1.50–1.60	1.75–1.85	1.86–1.94
Good Medium	1.50–1.64	1.40–1.48	1.66–1.74	1.66–1.85
Medium	1.22–1.47	1.12–1.39	1.46–1.60	1.45–1.65
Lower	1.06–1.25	1.04–1.45	1.21–1.69	1.01–1.60
Plainer	1.00–1.12	0.92–1.20	0.87–1.50	0.76–1.38

Note: BP1 is Broken Pekoe, PF1 is Pekoe Fannings, PDUST is Pekoe Dust and DUST1 is Dust. One element of tea grading is particle size, with the smallest particles known as dust.

Source: Tea Brokers East Africa, Ltd., 2001.

TABLE A5

TEA PRICES, 1960–2002 (US DOLLARS PER KILOGRAM)[a]

	MONTHLY												ANNUAL	
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	NOMINAL	REAL
1960	1.39	1.35	1.28	1.24	1.27	1.20	1.23	1.55	1.82	1.66	1.64	1.54	1.43	6.19
1961	1.43	1.40	1.37	1.33	1.39	1.30	1.23	1.28	1.39	1.46	1.46	1.31	1.36	5.78
1962	1.33	1.35	1.41	1.38	1.32	1.27	1.19	1.36	1.40	1.51	1.52	1.47	1.38	5.73
1963	1.35	1.29	1.23	1.23	1.21	1.12	1.15	1.30	1.43	1.56	1.30	1.35	1.29	5.49
1964	1.29	1.21	1.20	1.21	1.23	1.18	1.20	1.28	1.59	1.69	1.40	1.24	1.31	5.48
1965	1.28	1.26	1.22	1.28	1.24	1.23	1.18	1.18	1.50	1.48	1.29	1.22	1.28	5.30
1966	1.27	1.23	1.23	1.24	1.23	1.23	1.07	1.12	1.29	1.31	1.42	1.35	1.25	4.99
1967	1.21	1.19	1.17	1.23	1.29	1.17	1.11	1.11	1.36	1.46	1.59	1.30	1.27	5.02
1968	1.16	1.03	0.98	1.03	1.06	0.99	0.99	0.97	0.98	1.12	1.11	1.08	1.04	4.16
1969	1.11	1.09	1.08	1.08	1.14	1.14	1.14	1.04	1.03	1.04	1.11	1.08	1.09	4.13
1970	1.11	1.09	1.08	1.08	1.14	1.14	1.14	1.04	1.03	1.04	1.11	1.14	1.09	3.90
1971	1.07	1.03	1.02	1.02	1.05	1.10	1.06	1.04	1.06	1.06	1.06	1.13	1.06	3.59
1972	1.09	1.08	1.10	1.08	1.08	1.08	1.00	1.01	0.96	1.03	1.05	1.06	1.05	3.27
1973	1.03	1.06	1.09	1.08	1.08	1.06	0.99	0.98	1.02	1.10	1.10	1.12	1.06	2.84
1974	1.13	1.26	1.56	1.48	1.44	1.43	1.39	1.34	1.32	1.42	1.53	1.52	1.40	3.08
1975	1.51	1.55	1.54	1.43	1.33	1.40	1.29	1.34	1.34	1.28	1.29	1.29	1.38	2.74
1976	1.32	1.33	1.29	1.34	1.38	1.63	1.74	1.61	1.70	1.69	1.70	1.73	1.54	3.01
1977	1.95	2.22	3.75	4.15	3.41	3.22	3.04	2.18	1.90	2.25	2.04	2.15	2.69	4.86
1978	2.40	2.38	2.33	2.16	2.10	2.17	2.12	1.97	2.08	2.19	2.15	2.21	2.19	3.41
1979	2.26	2.15	2.16	2.13	2.12	2.12	2.11	2.14	2.08	2.17	2.24	2.15	2.15	3.01
1980	2.25	2.33	2.27	2.24	2.29	2.35	2.22	2.27	2.11	2.04	2.24	2.16	2.23	2.83
1981	2.17	2.23	2.21	2.16	2.08	2.00	1.87	1.76	1.78	1.92	2.01	2.02	2.02	2.56
1982	2.03	2.07	1.95	1.87	1.87	1.83	1.76	1.78	1.91	2.02	1.98	2.12	1.93	2.52
1983	2.17	2.05	1.98	2.04	2.01	1.88	1.94	2.00	2.18	2.59	3.50	3.61	2.33	3.13
1984	4.28	3.72	3.68	3.54	3.54	3.19	2.87	2.97	3.40	3.62	3.43	3.26	3.46	4.75
1985	3.16	2.81	2.41	2.18	1.66	1.64	1.57	1.59	1.62	1.73	1.77	1.66	1.98	2.75
1986	1.81	1.89	2.01	2.01	1.89	1.75	1.76	1.91	2.02	2.07	2.06	1.95	1.93	2.33
1987	1.98	1.84	1.83	1.50	1.44	1.34	1.53	1.59	1.60	1.85	1.92	2.07	1.71	1.88
1988	2.12	1.94	1.92	1.84	1.71	1.66	1.46	1.48	1.65	1.81	1.93	1.96	1.79	1.85
1989	1.93	1.82	1.77	1.72	1.69	1.77	1.94	1.86	2.23	2.62	2.35	2.54	2.02	2.10

Continues on next page

TABLE A5 (continued)

TEA PRICES, 1960–2002 (US DOLLARS PER KILOGRAM)[a]

	MONTHLY												ANNUAL	
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	NOMINAL	REAL
1990	1.74	1.62	1.65	1.59	1.36	1.12	1.32	1.26	1.48	1.60	1.58	1.52	1.49	1.49
1991	1.55	1.48	1.48	1.47	1.48	1.38	1.36	1.35	1.38	1.41	1.38	1.42	1.43	1.40
1992	1.45	1.39	1.39	1.53	1.63	1.68	1.76	1.80	1.92	1.89	1.82	1.86	1.68	1.58
1993	1.91	1.78	1.58	1.46	1.42	1.48	1.59	1.51	1.45	1.54	1.46	1.51	1.56	1.46
1994	1.50	1.61	1.66	1.58	1.54	1.57	1.71	1.66	1.57	1.60	1.46	1.39	1.57	1.42
1995	1.38	1.36	1.34	1.35	1.30	1.29	1.28	1.24	1.31	1.27	1.24	1.27	1.30	1.11
1996	1.37	1.34	1.37	1.42	1.43	1.40	1.37	1.44	1.45	1.49	1.50	1.51	1.42	1.28
1997	1.57	1.61	1.79	1.98	1.99	1.93	2.01	2.21	2.08	2.23	2.38	2.40	2.02	1.95
1998	2.55	2.81	2.29	1.95	1.56	1.56	1.68	1.70	1.75	1.74	1.59	1.61	1.90	1.91
1999	1.75	1.77	1.89	1.87	1.71	1.68	1.67	1.66	1.98	2.00	1.81	1.83	1.80	1.81
2000	1.88	2.11	2.06	2.03	2.01	2.05	2.11	2.10	2.11	1.97	2.01	1.92	2.03	2.08
2001	1.87	1.72	1.67	1.44	1.46	1.43	1.54	1.48	1.39	1.38	1.40	1.43	1.52	1.61
2002	1.45	1.52	1.53	1.51	1.49	1.39	1.46	1.50	1.56	1.55	1.52	1.47	1.49	1.60

a. London tea auction until December 1989; Mombasa tea auction thereafter.

b. Nom denotes nominal prices and real denotes constant (MUV-deflated) 1990 prices.

Source: World Bank *Commodity Price Data*.

TABLE A6

TEN-YEAR DEMAND OUTLOOK FOR BLACK TEA, 2000–10

	Thousands of tons		*Annual growth rates*	
	1990	*2000*	*1990/2000*	*2000/2010*
NET IMPORTS				
CIS[a]	172	224	2.7	3.1
United Kingdom	142	134	-0.6	-0.6
Pakistan	102	109	0.7	2.9
US	78	81	0.4	1.4
Japan	14	18	2.2	1.8
Canada	14	15	1.0	2.2
World	841	1,077	2.5	0.6
DOMESTIC CONSUMPTION				
India	516	617	1.8	3.7
China	41	37	-1.1	-1.6
Bangladesh	28	36	2.4	2.0
Indonesia	18	33	6.1	4.0
Kenya	27	28	0.2	0.3
Sri Lanka	19	24	2.6	3.8
World	942	1,137	1.9	1.0

a. Commonwealth of Independent States.

Source: Food and Agriculture Organization.

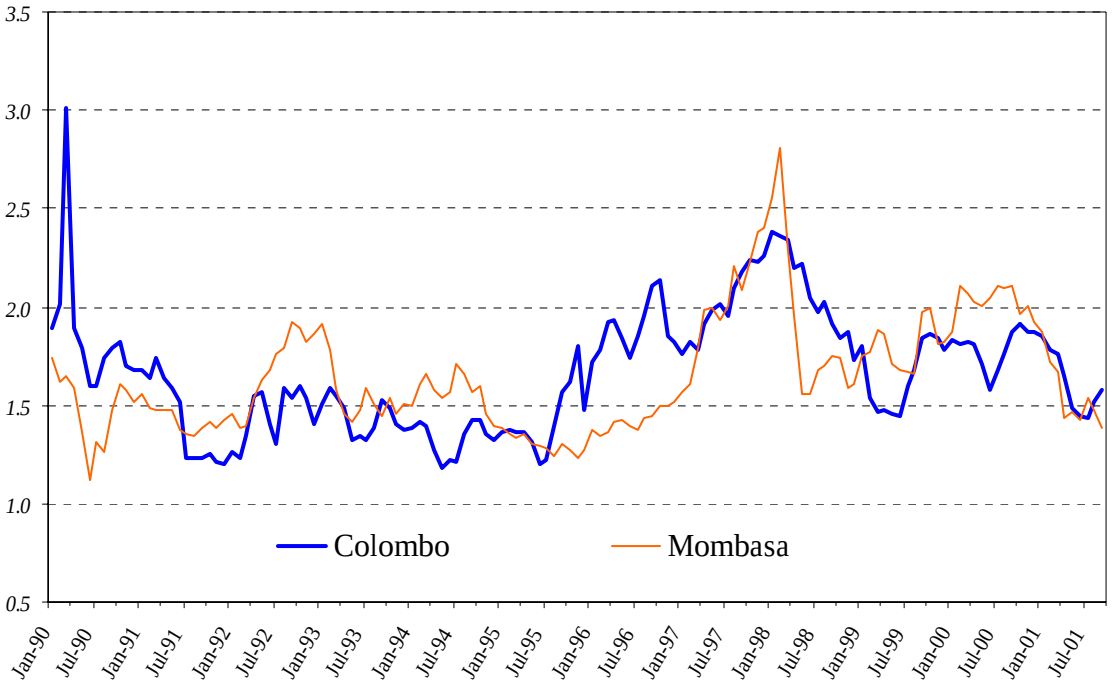
TABLE A7

TEN-YEAR SUPPLY OUTLOOK FOR TEA, 2000–10

	PRODUCTION				EXPORTS			
	Thousands of tons		*Annual growth rates*		*Thousands of tons*		*Annual growth rates*	
	2000	*2010*	*1990/00*	*2000/10*	*2000*	*2010*	*1990/00*	*2000/10*
BLACK TEA								
AFRICA								
Kenya	236	304	1.7	2.3	208	275	1.9	2.6
Malawi	42	42	0.7	0.0	38	38	-0.6	0.0
Uganda	29	39	14.3	2.7	26	38	16.8	3.5
Tanzania	24	29	2.4	1.7	22	28	3.8	2.2
ASIA								
India	815	1,070	1.2	2.5	198	151	-0.4	-2.4
Sri Lanka	305	329	2.5	0.7	281	293	2.5	0.4
Indonesia	131	147	0.3	1.1	98	87	-1.0	-1.1
China	65	54	-6.2	-1.7	28	21	-10.1	-2.6
Bangladesh	54	62	1.7	1.3	18	17	-3.6	-0.5
World	2,145	2,443	0.9	1.2	1,008	1,139	0.0	1.1
GREEN TEA								
China	500	671	3.8	2.7	156	210	5.8	2.7
Japan	90	91	0.0	0.1	1	1	8.0	0.0
Vietnam	38	50	4.3	2.5	19	25	11.0	2.5
Indonesia	38	49	1.0	2.3	8	12	14.4	3.8
World	681	900	2.5	2.6	187	254	6.3	2.8
TOTAL	2,951	3,343	1.6	1.3	1,294	1,393	1.4	0.8

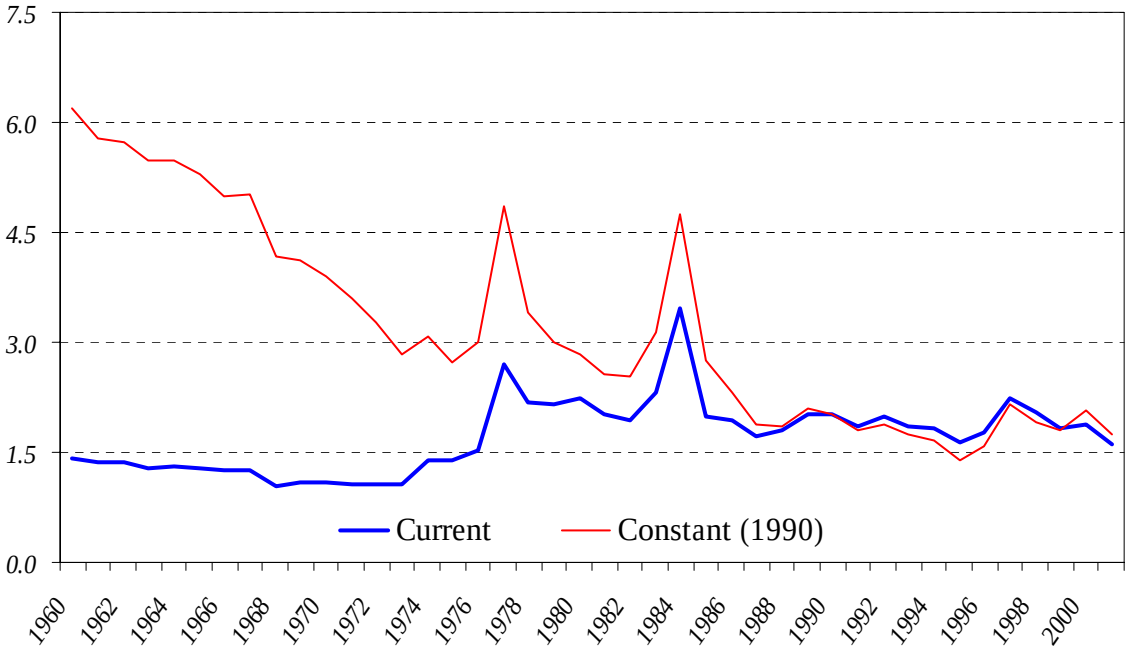
Source: Food and Agriculture Organization.

Figure 1: Monthly Tea Prices (US dollars per kilogram)



Source: World Bank, *Commodity Price Data*

Figure 2: Annual Tea Prices (US dollars per kilogram)



Source: World Bank, *Commodity Price Data*

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