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Sustainability of the coffee sector in Africa

Background

In accordance with Article 34 of the International Coffee Agreement 2007, the International Coffee Organization is required to provide Members with studies and reports on relevant aspects of the coffee sector. This document contains a report on the sustainability of the coffee sector in Africa.

Action

The Council is requested to take note of this document.

SUSTAINABILITY OF COFFEE SECTOR IN AFRICA

INTRODUCTION

1. Coffee is an important commodity in many African countries both in terms of export earnings and generating income for smallholder farmers. The coffee industry functions in three key economic sectors. In the primary sector, the industry generates direct income, employment and output. In the secondary sector coffee is used as an input in the processing industry (roasting). The tertiary sector covers domestic wholesale and retail marketing for domestic consumption and exports. These activities add to the value chain and contribute to the national economic growth for a number of African countries.

2. Sustainable development presupposes a concern for social equality between the generations, a concern which should logically extend to equality within the same generation. In order to achieve this, there are three areas that need to be considered, namely economic growth, social development and respect for the environment. A sustainable coffee economy is based on the well-being of the various actors in the chain, particularly the producers who are the weakest link in this power relationship. More precisely, a sustainable coffee farmer will meet long term environmental and social goals while being able to compete effectively with other market participants and achieve prices that cover his production costs and allow him to earn an acceptable profit margin. The question that needs to be addressed is whether coffee growing is sustainable in Africa. The present study will use the main indicators of sustainable development to assess the situation in the African coffee sector.

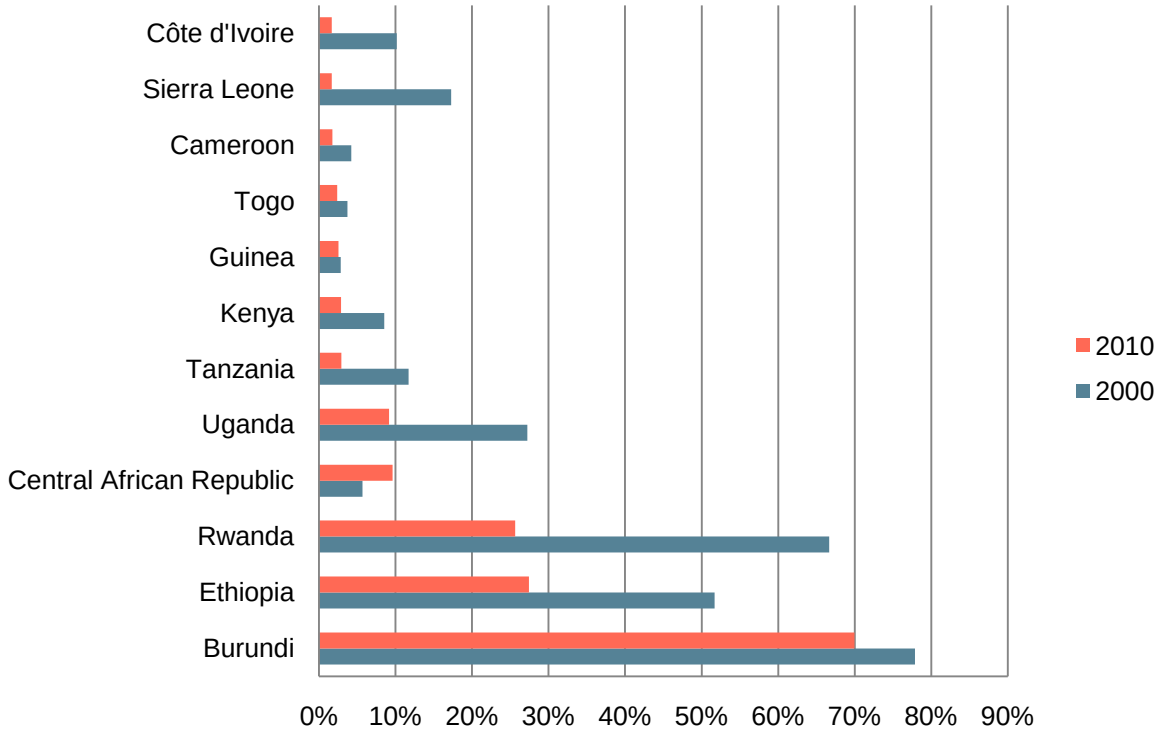
3. It should be noted that the present report provides only preliminary information useful for assessing the sustainability of the coffee sector in Africa. It will be revised when further relevant information from countries is available. The following points will be covered:

I. Dynamics of African coffee production
II. Adoption of sustainability standards in Africa
III. Conclusion

I. DYNAMICS OF AFRICAN COFFEE PRODUCTION

4. The coffee plant is indigenous to Africa, and it was in Ethiopia that the habit of drinking coffee first developed. The two botanical varieties, Arabica and Robusta originate from Africa. Robusta coffee is cultivated at lower altitudes while Arabica coffee is cultivated at higher altitudes and often on volcanic soils. Arabica coffee is more difficult and costly to grow than Robusta. In Africa coffee is one of the most important commodities, generating substantial income to rural communities, contributing to the fight against extreme poverty and key to achieving the first goal of the United Nations Millennium Development Goals (MDGs). It accounts for the primary source of income for more than 10 million households in 25 African coffee-growing countries. Some of these countries depend on coffee as a primary source of income for their rural population and an important source of export revenues. It is a vital contributor to foreign exchange earnings in addition to accounting for a significant proportion of tax income and Gross Domestic Product for a number of countries in Africa (Graph 1).

Graph 1: Share of coffee in total exports value of all commodities

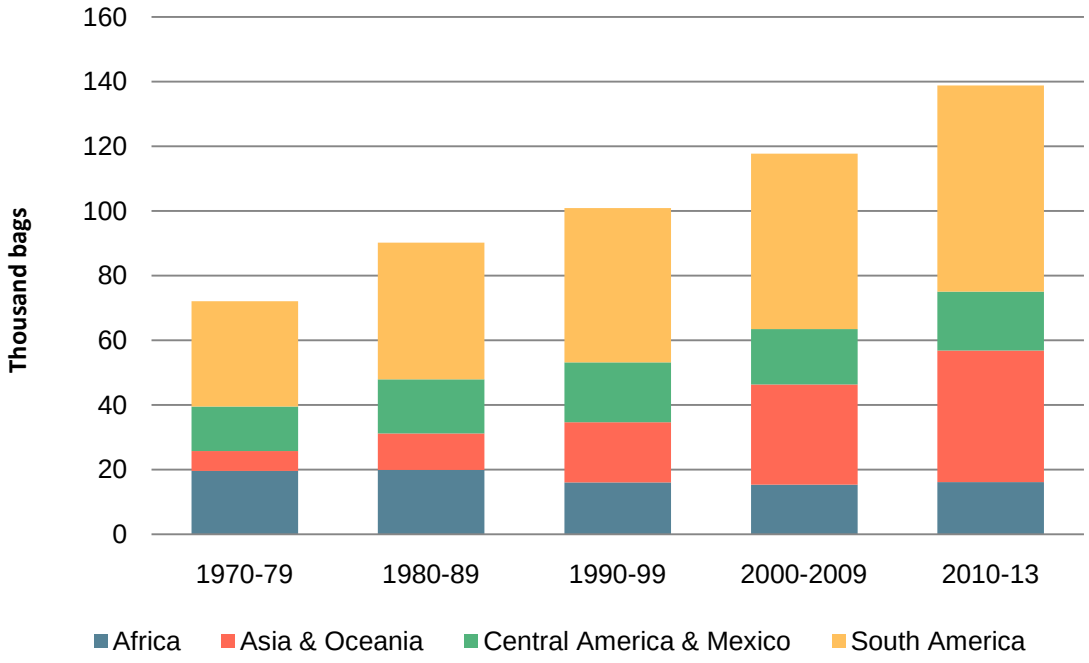


I.1 Coffee production in Africa

I.1.1 Past and current production trends

5. Africa is the region with the largest number of coffee producing countries: 25 as opposed to 11 in Asia & Oceania, 12 in Mexico & Central America and 8 in South America. Production in Africa has exhibited negative growth over the last 43 years from an average volume of 19.7 million bags per crop year in the regulated period under quota to 15.7 million under the free market. Africa's share of world production has hence decreased from 27.2% in the 1970s to an average of 16% in the 1990s and 13.1% in the 2000s. Since 1990, production levels have generally stagnated, with fewer than 19.6 million bags every year being produced (Graph 2). During the regulated market period, many African countries benefited from not only a guaranteed market in the European Union under the framework of EU-ACP Agreements and guaranteed prices for producers but also regular extension services. As a result there was an increase in production due to the rapid expansion of areas planted with coffee. There were a number of factors that led to the subsequent decline in production. It was initially attributable to structural factors such as low yields and ageing coffee trees. There then followed economic liberalization programmes implemented in the 1990s. Regional conflicts affecting certain countries also played a role in this decline. Production in crop year 2013/14 was estimated at 16.3 million bags. Of this an estimated 10.2 million bags were expected to be produced by just two countries (Ethiopia and Uganda)[1].

Graph 2: World production (average)



[1] *The production statistics used in this study are as at November 2014.*

6. In terms of individual countries, it may be noted that **Angola,** which accounted for on average 5% of annual world production until the mid-1970s, has lost its place among the region's leading producers, with production of just 35,000 bags in 2013/14 compared to 4 million bags in 1972/73. The **Democratic Republic of Congo** and **Madagascar** have also lost significant market share, with 327,000 and 522,000 bags respectively. However, coffee rehabilitation programmes being carried out in these countries, particularly in Angola, may help to reverse the downward trend. **Côte d'Ivoire** and **Cameroon** are still significant producers but their production has fallen substantially. In **Côte d'Ivoire** production fell from an annual average of over 4 million bags until 1989/90 to 2.7 million bags in the 2000s. Its production for crop year 2013/14 was estimated at 2.1 million bags. **Cameroon** has been producing less than one million bags a year since 2000 compared to 1.5 million bags in the 1980s and 1990s. Its production for crop year 2013/14 was estimated at only 315,000 bags.

7. A steady decline in production has also been observed in **Kenya** as average production since 2000/01 has fallen below 800,000 bags compared to 1.5 million bags from 1970/71 to 1999/2000. In crop year 2013/14 Kenya's total production was estimated at 756,000 bags. Until the 1980s coffee was the leading foreign exchange earner before being overtaken by tea, horticulture and tourism. **Tanzania** is the fourth largest African coffee producing country with an average annual production of slightly below 800,000 bags since 2000. A substantial improvement took place in crop year 2012/13, with production estimated at 1.1 million bags but the level slipped back below 800,000 bags in 2013/14.

8. The most dynamic growth in African production was observed in **Ethiopia,** which has recorded an average annual growth rate of 2.7% over the last 43 years, increasing to 5.5% since 1990. The country's production trend is generally upward despite some downward interruptions, reaching 6.6 million bags in 2013/14. Ethiopia is also unique in Africa in so far as it has a strong domestic coffee consumption culture, which frequently accounts for over half of production. To a lesser extent, **Uganda** has recorded sustained growth in its production, with an annual average fluctuating between 2.7 and 2.9 million bags since the 1970s. Its production level was above 3 million bags in crop years 2012/13 and 2013/14. Annex Table 1 shows average production per country since the 1970s whilst Annex Table 2 shows recent performance starting in 2010 and the world ranking.

I.1.2 Main characteristics of coffee farming

i) Area under coffee and number of farmers

9. In almost all African countries coffee farming is dominated by smallholdings varying in size from half a hectare to 10 hectares per farm[2]. Large plantations or coffee estates represent only a tiny proportion of farms. Malawi and Zambia are the exceptions as their coffee farming is dominated by estate holdings. In Kenya, estate farms contribute 40% of the total production. The total number of coffee farmers directly involved in production activities in Africa is estimated at between 9 and 11 million. This figure may differ from other sources depending on the strict definition of the concept of individual farmers and farmer households. The total number of households involved in coffee growing activity is estimated at 7 million and the average size of a household is two adults (husband and wife). In some cases both husband and wife are registered as coffee farmers but in a number of cases it is only the men that are considered to be coffee farmers. Annex Table 3 shows the estimated number of farmer households per country and areas planted with coffee.

10. For comparison, Table 1 below shows a summary of the estimated number of coffee farmers and workers in the four coffee growing regions as well as the percentage share of rural population.

Table 1: Number of farmers and average share of rural population

	Numbers of farmers	Number of workers	TOTAL	% share of rural population in the total population	% share of rural population growing coffee
Total Africa (25 countries)	10 847 432	78 037	10 925 469	64	53
Asia & Oceania (11)	4 072 000	129 994	4 201 994	64	24
Central America & Mexico (12)	585 866	2 036 960	2 622 826	28	12
South America (8)	1 479 000	810 500	2 289 500	32	11
TOTAL (56 countries)	16 984 298	3 055 491	20 039 789		

11. Coffee land holding patterns in Africa vary from country to country and from region to region within the same country. Land used for coffee is significant in areas where the choice of crops grown for export is limited. By contrast, areas which offer the possibility for significant crop diversification have less land devoted to coffee. It should be noted that the key decisions on coffee issues in Africa are largely made by men as the majority of the households are headed by men. As a result, a family of a married couple with both man and

[2] *In certain countries such as Burundi, Rwanda, Malawi and Zimbabwe, smallholding coffee farms can consist of just 100 trees.*

wife farming coffee is generally considered as one farmer instead of two. However the number of farmers and farm hired workers in Africa can be reasonably estimated at 10.9 million men and women.

12. Another important characteristic of coffee farming in Africa is the ageing population. The average age of farmers is over 60 despite the continent being dominated by a huge number of young people. Indeed, the young and educated do not engage in coffee production due to the low returns.

ii) Farming systems

13. With a few exceptions, smallholdings are generally poorly developed owing to a lack of equipment, which is in turn due to limited capital investments to increase efficiency. Many of these smallholder farmers grow additional cash and food crops. In many countries, particularly in West Africa, these crops have been managed on an extensive system with minimum inputs giving low yields. This extensive farming system has had a negative environmental impact in terms of deforestation and water use. Family labour is generally used for crop maintenance with the assistance of hired labour in some cases. Mixed farming (coffee trees intercropped with food crops such as bananas, beans, potatoes, and others) is generally practiced throughout Africa. Most coffee plantations were established several decades ago and their average age is now over 30 years. However, in some countries improved planting materials have been introduced, particularly in East African producing countries. Coffee research institutions supply planting materials to farmers, but due to the institutions' limited resources, the needs of farmers in a number of countries are not always satisfied.

iii) Production costs

14. Costs of production are difficult to assess as small scale farmers rely on family labour and occasional hired labour. The lack of record keeping is also a limiting factor in assessing costs of production. In almost all countries, coffee farmers do not have structured production cost control systems. There are no reliable indicators to benchmark the performance of farmers on the various factors normally used to assess economic competitiveness. Production costs include land, water, coffee trees, fertilizers, pesticides and labour. These costs vary widely from one country to another due to the differing marketing systems, physical infrastructure (roads, transports, etc.), land ownership and available credits. Labour and fertilizers are the most critical factors in determining production costs. As both mechanization and the use of fertilizers are rare in Africa, labour

costs represent more than 70% of the total production cost. Indeed, in some countries in East Africa a demographic shift is being observed as smallholder farmers move to using hired labour for their farm management, an area traditionally handled by family labour.

15. The production costs of Robusta coffee tends to be lower than Arabica due to Arabica requiring more inputs and processing to prepare it for the market. Also, those of fertilizers are more widely used by Arabica producers than Robusta producers. In East Africa the use of fertilizers and pesticides requires an average expenditure of over US$600 per hectare. Disease control accounts for over 30% of this cost. Costs of production are generally lower for smallholding farms than estate farms. In Burundi for example, the average cost of production for a farmer who adopts good agricultural practices (fertilizers and labour) varies between 50.1 US cents to 57.6 US cents per tree. The average size of a farm is 100 trees.

I.2 The institutional framework of the coffee sector in Africa

16. Although there are country specific cases, institutions forming part of the coffee value chain include coffee sector government regulatory bodies, private sector organizations (cooperatives, farmers' unions, processors/exporters), research institutions and extension services institutions.

I.2.1 Coffee sector regulatory bodies

17. The reforms in the parastatal sector that occurred within the context of the World Bank and the International Monetary Fund's structural adjustment programmes have led to the dismantlement of marketing boards and the creation of regulatory bodies in a number of African producing countries. The main responsibilities of these public sector institutions include licensing exporters, tax collection, quality control, price information services, development of the sector as a whole and the representation of the sector to international and regional coffee organizations. However, and despite liberalization, some countries continue to influence internal and external marketing (e.g. Côte d'Ivoire).

I.2.2 Coffee research and development institutions

18. Coffee research services began during the colonial period in a number of countries in Africa. However, producing countries of the continent are still considered as marginal developers of new technologies. Their share of the world research and development effort is very tiny compared to producing countries in Asia, Central and South America. Generally, research programmes in African institutions have generated only limited technologies or

innovations. Recent improvements have been recorded in research institutions such as in Côte d'Ivoire (CNRA), Ethiopia (JARC), Kenya (CRF), Tanzania (TaCRI) and Uganda (NaCORRI). These research institutions have succeeded in developing new high yield and disease resistant planting materials. However their dissemination and adoption by farmers has been limited.

19. The transfer of technology to farmers, the provision of training and other agricultural advisory services fall generally under the responsibility of the government through national extension services organizations or research institutions**.** In any case, research and development efforts have had little impact on socio-economic and technological development across the continent. Many research institutions suffer from a shortage of funds and well-trained manpower. Moreover, agriculture in some countries such as Angola, the Democratic Republic of Congo, Equatorial Guinea, Gabon and Nigeria, has traditionally been overshadowed by more attractive economic sectors such as mining and oil extraction.

I.2.3 Private Sector

20. The reforms of the coffee marketing system brought many new exporters and intermediaries into the sector. The sector has organized itself into associations to improve the marketing environment. Farmers are also organized into cooperatives and unions but they are relatively weak in many African countries. As was the case in Uganda and in many other producing countries, the earlier success of these cooperatives was undermined by political interference and mismanagement. Kenya has a long tradition of coffee farmer organizations as farmers are required by law to form cooperative societies to manage their business. In West Africa cooperative movements are relatively new.

I.3 Market organization

21. Since the liberalization that began in the early 1990s, government intervention has been limited to the regulation of the sector while the marketing function is carried out by the private sector. However, there are some countries such as Côte d'Ivoire that continue to exert limited control over the marketing through the enforcement of guaranteed minimum prices for growers and the approval of export prices obtained by exporters (*Prix de déblocage*). In countries where a free marketing system applies, prices are dictated by the international market and transmitted locally through either an auction system (Ethiopia, Kenya, and Tanzania) or direct sales (Rwanda, Uganda, etc.). In Uganda and Rwanda the private sector operates freely both in the internal and external marketing of coffee while some level of control does exist within the auction system in Ethiopia, Kenya and Tanzania. In some countries smallholder farmers are organized into cooperatives to better market

their coffee but their capacity is limited due to low capital investment in infrastructure and financial resources. A similar situation has also been observed in countries that have the tradition of a cooperative movement such as Kenya and Tanzania.

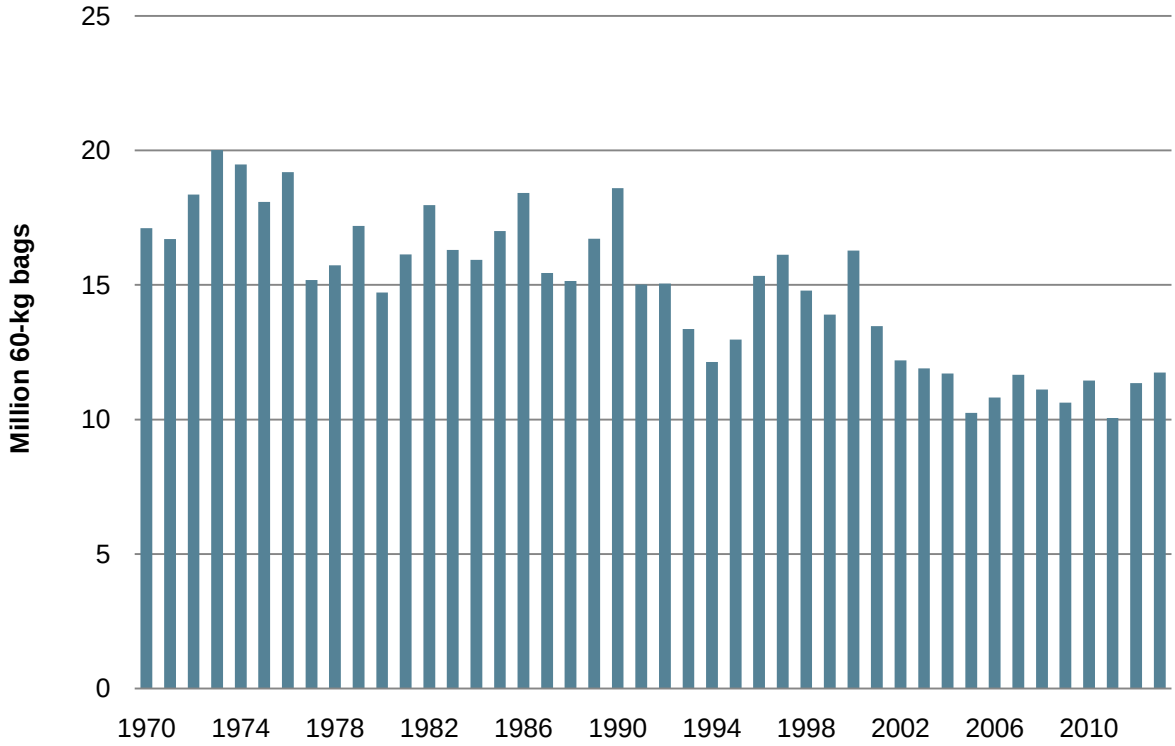
I.4 Crop finance

22. Despite the importance of agriculture in the African economy, its funding has been marginalized as the banking sector has traditionally shied away from lending to agriculture due to the perceived and real inherent risks. In many countries, the agricultural sector receives less than 4% of bank financing compared to the secondary and tertiary sectors which absorb over 30% and 60% respectively. Estate farmers are generally able to obtain credit more easily or raise finance through the formal banking sector than smallholder farmers. Moreover, operations connected with crops and livestock production are of less interest to the banks than commercial activities. Since liberalization, many state-owned development and agricultural banks have been dismantled in a number of coffee producing countries. In Kenya, the Agricultural Finance Corporation, a public sector corporation, used to be the main channel used by the Government to advance credit for agricultural development and production. The Government established in 2006 a Coffee Development Fund to provide sustainable and affordable credits to farmers for farm inputs, farming operations to accelerate production of high quality coffee and improved farmer earnings. Currently the Fund has been merged into one large fund known as the Commodities Fund.

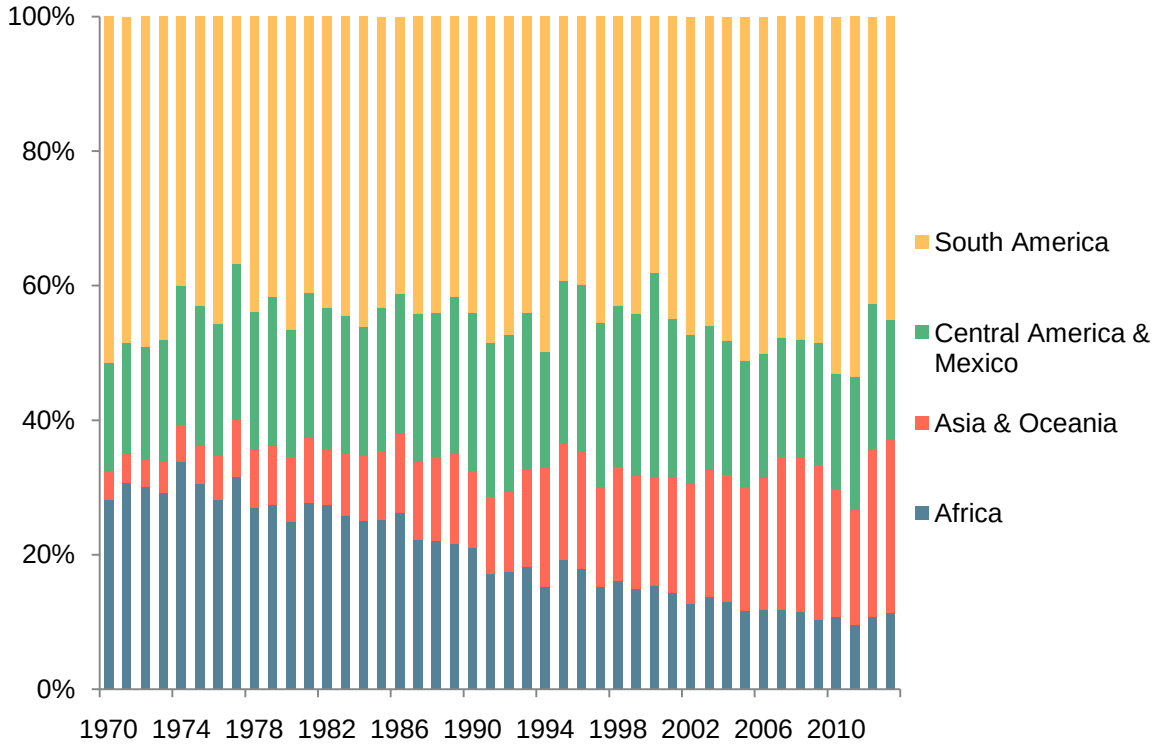
I.5 African coffee exports performance

23. Total exports by African exporting countries have been decreasing over the last three decades as a result of downward production levels in a number of countries (Graph 3). Throughout the 1970s, 1980s and 1990s Africa represented on average 31%, 24.4% and 19.1% of the world total exports, respectively. The three largest African exporting countries so far for this decade are Uganda (2.9% of the world total and 28.7% of Africa), Ethiopia (2.7% and 26.4%) and Côte d'Ivoire (1.4% and 13.4%). In the 1970s, the world shares of the three countries were 4.9%, 2.4% and 7.1% respectively. The value of all green coffee exports by African exporting countries was US$1.8 billion out of the total value of US$15.9 billion in calendar year 2013, representing 11.4% compared to 21% in 1990 (Graph 4).

Graph 3: African coffee exports



Graph 4: Share of green coffee exports value per region



I.6 Domestic consumption

24. Domestic coffee markets are growing despite the lack of reliable data across countries. Ethiopia remains the leading country in terms of domestic consumption with 3.6 million bags in 2013/14, representing 71.6% of the total domestic consumption of Africa and 8% of all exporting countries (Box 1). A number of other countries including Cameroon, Côte d'Ivoire, Kenya and Uganda have recently recorded booming domestic consumption. The Central African Republic is a small producing country but coffee consumption is widespread among both rural and urban populations. With a growing population in Africa there is huge potential to increase domestic consumption. However, this potential has not materialized yet as per capita consumption is still very low at 466 grams on average (Annex Table 4). It is expected that the improvement of the living standards of the growing population will lead to an increase in coffee consumption as in the case of emerging markets.

Box 1: Ethiopian coffee ceremony

The strong and continuing tradition of coffee consumption in Ethiopia is evidenced through its well known coffee ceremony: By tradition, when friends gather together, coffee beans are roasted in an open pan and the guests are invited to inhale the aroma of the roasted beans. After grinding the beans with a mortar and pestle the coffee is brewed in a jug. Cups are placed on a tray and the coffee is poured from a considerable height into each cup in a continuous motion. The cups are filled to the brim, a gesture that is akin to wishing "fullness of life" to the guests. Coffee is served three times and it is expected that guests remain for the whole of the ceremony. The last serving is named "baraka" or blessing. Many people liken the ceremony to a form of group therapy during which problems are discussed in relaxed circumstances.

II. ADOPTION OF SUSTAINABILITY STANDARDS IN AFRICA

II.1 Indicators of sustainable coffee farming

25. Sustainability in the coffee sector refers to a way of assessing the well-being of coffee farmers as well as a good conservation policy of the environment and the promotion of social equality. As indicated in the introduction, a sustainable coffee farmer will meet long term environmental and social goals while being able to compete effectively with other market participants and achieve prices that cover his production costs and allow him to earn an acceptable profit margin. The sustainability of the coffee sector therefore depends on three pillars, including economic sustainability, environmental sustainability and social sustainability. Table 2 summarizes the sustainability indicators to be assessed under each of the three pillars.

Table 2: Indicators of sustainable coffee sectors

Economic indicators	Social indicators	Environmental indicators
i) Adequate income for farmers	i) Gender equality in coffee farming	i) Adoption of Good Agricultural Practices
ii) Improved farm productivity	ii) Improved living conditions	ii) Non-harmful soil fertility management
iii) Farming profitability	iii) Adequate farm working conditions	iii) Integrated pests & diseases management
iv) Access to market & transparency	iv) Improved farmer skills	iv) Adequate water management
v) Quality product & traceability	v) Food security	v) Waste management
vi) Access to finance	vi) Healthy farming practices	vi) Conservation of biodiversity
vii) Diversified income generating activities	vii) Effective farmers' organizations & positive impact on their communities	vii) Land protection (forest)

II.2 Major achievements towards a sustainable coffee sector in Africa

26. Considering the main indicators of sustainability, where does the African coffee sector stand? As defined above, sustainable agriculture is the efficient production of safe, high quality agricultural products, in a way that protects and improves the natural environment, the social and economic conditions of farmers, their employees and local communities, and safeguards the health and welfare of all farmed species.

II.2.1 Economic sustainability

i) Adequate income for farmers

27. The price paid to coffee farmers is the main determining factor of their income although the volume of production plays an important role. When prices fall below marginal production costs, it creates a vicious circle since farmers find it difficult to maintain their farms, leading to further decreases in production and income. Annex Table 5 indicates the price paid to coffee farmers as a percentage share of the average price on the futures markets.

28. Available data for calendar year 2013 indicates that on average Robusta coffee growers received more than 50% of the London futures market price, particularly in Uganda (80.2%), Togo (78.8%), Cameroon (78.7%) and Côte d'Ivoire (58.7%). It was far less in Angola as only 37.2% of the London futures market price was paid to growers in 2013 compared to 51.7% in 2012. For Arabica coffee growers the price received in calendar year 2013 represented 64% in Cameroon of the New York futures market, 58.7% in Ethiopia and 54.1% in Uganda. Similar ratios are observed when prices paid to coffee growers are compared to the unit value of exports (Annex Table 6).

ii) Farm productivity

29. As the market price of green coffee exports is beyond the control of coffee growers, an increase in yield is expected to mitigate their cost of production, thus contributing to improving their income. High yields are therefore an important factor for sustainable coffee production. However, low productivity in many African countries has been observed (Annex Table 7).

30. Average yields in Africa are generally low and even declining in some countries. They range from 0.1 to 0.8 tons per hectare. Estimates for crop years 2010/11 to 2013/14 indicate an average of 408.7 kg/ha. It should be noted that the yields from estate farms are slightly higher. Generally, African agriculture is characterized by low productivity due to lower use of fertilizers. The lack of intensification of agriculture has led to the expansion of the agricultural frontier with the opening up of less favourable land for cultivation. Limited demand for fertilizers from small scale farmers is also due to higher fertilizers prices while farm gate prices are relatively low. In other words, the use of agro-chemicals such as fertilizers is limited due to the high cost associated with such inputs.

31. African production has been seriously undermined by the continued reliance on out-dated and often unproductive coffee varieties in the face of the widespread prevalence of pests and diseases, including coffee leaf rust, coffee berry borer, coffee stem borer, antestia bug, and coffee wilt disease among others. Most varieties which are grown at present in the different countries are susceptible to coffee leaf rust and or coffee berry borer. It should be noted however, that the Coffee Research Foundation in Kenya has recently developed a new variety known as ‘Batian’ with a high yield potential and which is also tolerant of major coffee diseases such as leaf rust and berry diseases. Positive measures have been taken in a number of countries to improve productivity through coffee development strategies (Cameroon, Côte d'Ivoire, Tanzania, Uganda, etc.). It has also been observed that a significant number of farmers and farmers’ associations have benefitted from sustainable coffee programmes in countries such as Ethiopia, Kenya, Rwanda, Tanzania and Uganda but compared to the size of the farming communities, these initiatives cover a tiny proportion of coffee growers.

iii) Access to market

32. Having farmers organized into structured groups facilitates access to market and reduces transaction costs. It also reduces the cost of input through group purchases at bargained prices. Very few exporting countries in Africa have well structured producer cooperatives with the necessary financial and managerial capacity. With the exception of a

few countries that have a wealth of experience in the rural cooperative movement, most cooperatives or primary societies are weak and need strengthening. A small number of farmer associations have been reported to have established market linkages through development programmes supported by donors and NGOs. Although noticeable progress has been made, market access by farmer associations remains generally weak in almost all African producing countries.

iv) Access to finance

33. Many challenges remain in the field of financing as interest rates are too high (20-28%) while access for smallholder farmers to credit is limited. Due to the nature of unpredictability in agricultural production as a result of high dependency on exogenous factors, credits from commercial banks are rare in many African countries. Estate or commercial farms have their own financing channels, generally commercial banks. Banks prefer lending to other sectors. However, credits to farmers are relatively well developed in Kenya through cooperative societies. The experience of rural credit in many countries in West Africa ended in failure due to a significant number of non-repayments. With the absence of credit facilities, smallholder farmers minimize their expenditure through the reduction of farm husbandry or pest and disease management. In some countries the majority of coffee farmers continue to depend on local village lenders for credit. These lenders apply very high rates of interests to the debts which are settled through the supply of harvested coffee.

v) Diversification of income generating activities

34. Developing additional farming activities secures the revenue of coffee farmers leading to sustainable coffee production as farmers are able to better manage any low coffee price cycles. Crop diversification is intended to give a wider choice in the production of a variety of crops in association with coffee so as to expand production related activities to various crops and also to lessen risk. In many African countries coffee growing is associated with food crops for household consumption (Cameroon, Côte d'Ivoire, Tanzania, and Uganda). Where smallholder farmers invest in activities such as livestock or poultry raising, coffee farming is often at risk of being abandoned when the coffee prices are low. In West and Central Africa, many farmers have replaced their coffee farms with natural rubber farms (Cameroon and Côte d'Ivoire).

II.2.2 Social sustainability

i) Gender equality in coffee farming

35. Gender equality in agriculture is a complex issue in the context of African sociology. Generally, the household is headed by the husband but the wife participates in all decisions relating to family issues, including farming. A single woman who is a coffee farmer has the same land rights as a single man. However, there are some differences between countries. In Togo 85% of coffee farmers are men and 15% are women. Above all, it should be noted that in married couples the ownership of land and coffee farms by women is still unclear as when the couple divorces the divorced woman is left without any property rights in a number of countries.

ii) Improved living conditions

36. Improving the living conditions of coffee farmers and their hired workers has been included in the coffee development strategies of a number of countries in Africa. It has been observed that the living conditions of coffee farmers are best protected when the farmers are organized into cooperatives that are able to mobilize resources to develop their communities. Some countries have already made some positive progress in this regard but the challenge remains high in others.

iii) Adequate working conditions: healthy production practices

37. It should be noted that hired labour is generally used on estate farms that represent less than 5% of coffee farms in Africa. Assessing the living conditions of smallholding hired workers in terms of their housing and education is a challenge. All farmers are entitled to receive training in good agricultural practices, including safety measures to protect their health.

iv) Improved skills for farmers through the provision of extension services and relevant training

38. A serious challenge for coffee farming in Africa is the provision of extension services to smallholder farmers. In almost all African countries extension services are inadequate or poorly equipped. Some countries including Ethiopia, Kenya, Rwanda, Tanzania and Uganda have made substantial progress but the challenge remains as the provision of extension services is an ongoing process that requires important financial and human resources. Governments of many countries no longer provide extension services leaving the private sector to fill the gap. However, collaborative arrangements between the private and public sectors are necessary to address this critical issue.

v) Effective farmer organizations and the positive impact on their communities

39. A limited number of farmer organizations have succeeded in improving social infrastructures for their communities, including building schools, health centres, even roads for better access to farm gates. However, these kinds of positive developments in rural areas are very limited and depend on donor funded programmes.

II.2.3 Environmental sustainability of the African coffee sector

40. In many African countries production of coffee and other cash crops has had a significant impact on the environment in terms of deforestation and water use. However, there is now far greater awareness of environmentally friendly agricultural practices.

i) Adoption of good agricultural practices

41. It is important to understand whether coffee farmers in Africa receive extension services to improve their farming practices. The basic practices include planting, weeding, pruning, mulching, soil erosion control measures and fertilization. As already mentioned above, providing extension services to farmers has become too expensive since the end of government intervention in almost all African countries.

ii) Adequate soil fertility management (use of non-harmful fertilizers)

42. Agronomic practices in a number of African countries are low as the main production practices are weeding, pruning and mulching. The use of agro-chemicals such as fertilizers is limited. Fertilizer use in all African countries, including non-coffee producing countries, accounts for only 1% of world consumption. On average 8kg of fertilizer is used per hectare in Africa. Only about 10 countries out of a total of 58 use fertilizers in farming. The region's main fertilizer users (Egypt, Morocco and South Africa) are not coffee producing countries. Some coffee producing countries, such as Cameroon, Côte d'Ivoire, Ethiopia, Kenya, Tanzania and Uganda do use fertilizers in coffee farming but only on a relatively modest scale compared to the situation in other producing regions. The inherent lack of fertility, along with widespread soil nutrient mining, has led to the expansion of the agricultural frontier in Africa and the opening up of less favourable soils for cultivation. However, it should be noted that Ethiopia and Kenya stand as a notable departure from the rest of African producing countries as the two countries consume significantly more fertilizer per year. Most of the fertilizers are used on food crops, in particular maize. In Kenya, coffee farming absorbs only 5.5% of the total fertilizer consumption per year.

iii) Integrated pest and disease management

43. The use of fungicides and pesticides remains the most effective way to control coffee pests and diseases as indicated in a recent survey conducted in four African countries (Kenya, Rwanda, Uganda and Zimbabwe) on the management of coffee leaf rust.

iv) Waste-water effluent management (wet process)

44. Wet processing of coffee generates waste water that can pollute water sources, affecting the environment and increasing health risks of the communities, putting the sustainability of the coffee industry at risk. Water pollution from coffee processing in the washing stations has been observed in a number of African countries. Indeed, effluents from these washing stations flow downhill and into the streams or rivers below and represent a significant health risk for farmers and their families. Other ecological impacts result from the discharge of organic pollutants to waterways, reducing levels of oxygen for aquatic plants and wildlife. Relevant resources are still required to assist a number of countries and cooperatives in adopting corrective measures.

v) Other indicators of environmentally friendly practices

45. Many other indicators of sustainable coffee farming have also been implemented through certification programmes in a number of countries. These indicators include land protection, waste management and the conservation of biodiversity.

II.3 Opportunities and challenges to achieving a sustainable coffee sector in Africa

II.3.1 Opportunities

46. There is potential for significant improvements in a number of areas of the coffee value chain in Africa. An increasing number of sustainability initiatives supporting farmers in Africa have been observed over the last few years. Among these initiatives, certification standards have emerged as one approach to promote economic, social and environmental norms for coffee production and commercialization. Certification of coffee farmers has been suggested as a useful strategy for improving the position of smallholder farmers in the sector. Currently, there are seven bodies particularly involved in the coffee sector in Eastern Africa offering certification. These certification standards provide strategies to enhance sustainable coffee production and responsible trade. Despite the existence of several standards, they share the same aim of improving the livelihoods of coffee farmers and the

sustainability of the sector. It is expected that through certification programmes, farmers will benefit from market linkages as a result of long term contractual arrangements with buyers that will lead to farmers being less vulnerable to price volatility and to having stronger bargaining power.

47. Farmers cooperatives have the potential to provide a wide variety of important functions to their industry. These cooperatives could allow farmers to pool resources to decrease input and production costs, to develop more efficient techniques, improve research and technology transfer, and to effectively take their members' products to markets. Cooperatives are also expected to play an important role in the commercialization process by shortening the supply chain. This is expected to be achieved through direct interactions with exporters and processors to reduce transaction costs and market risks. Cooperatives or farmer associations are also considered crucial for improving the volume and quality of coffee and guaranteeing the reliability of smallholders as preferred suppliers in the value chain.

II.3.2 Challenges

48. How ready is Africa for a sustainable coffee sector? Many farmers still need to be convinced that it is possible to ensure high yields in a profitable manner while enforcing sustainable practices. Although several initiatives have demonstrated the potential gains, it will take time to transform the whole coffee industry across Africa to comply with international sustainability standards. With the limited capacity of extension services providers, the coffee farmer organizations (cooperatives or unions) are the strongest pillar of the sustainable coffee sector in Africa. Where coffee farming is dominated by poor small scale farmers, cooperatives can be used as tools to disseminate sustainable agricultural practices or sustainable farming models. This has been successfully demonstrated in Uganda with a few cooperatives, but there is still a need to cover a greater number of farmers.

49. While some countries have recorded positive results in the move towards sustainability, the following specific challenges still need to be addressed:

- Low productivity and consequent low economic profitability of coffee farming
- Vulnerability of farmers to low prices and low income
- Weak organizational capacity of small scale farmers
- Weak marketing position of small scale farmers
- Reduced or lack of extension services to small scale farmers
- Low adoption of new technologies

CONCLUSION:

50. Although many initiatives have been taken in some countries, many challenges remain to achieve a sustainable coffee sector in Africa. The main challenge is how to move the African coffee sector from a subsistence sector to an entrepreneurial one. Farmers need sustainable income generation and long term livelihood security.

51. Productivity is still too low to be able to promote sustainable coffee production in the case of long periods of low prices. In many African countries, the smallholder sector consists of a large number of widely scattered small farming operations, often with limited physical accessibility and very poor communications. Moreover, given the weak research and extension support, farmers in many countries have been slow to adopt good practices that could lead to the required high quality and productivity.

52. Finally, it should be noted that, when their income is reduced, smallholder farmers are tempted or forced to limit practices that protect soil quality. Furthermore, constraints on resources lead support services to limit basic training that provides knowledge on the use of inputs, recycling of organic wastes to produce fertilizers, and biological species favourable to proper soil drainage and oxygenation. This is a serious challenge to sustainable farming as the human dimension of sustainability lies in the reduction of poverty and inequality, access to resources, healthcare and education. Nonetheless, more effort should continue to raise the profile of the African coffee sector to meet sustainability standards.

Table 1: Average production

Country	1970s	1980s	1990s	2000s	2013/14*
Total Africa	**19 629**	**19 888**	**16 078**	**15 381**	**16 275**
Côte d'Ivoire	4 155	4 338	3 448	2 692	2 100
Ethiopia	2 982	3 128	2 973	4 904	6 600
Uganda	2 692	2 724	2 811	2 924	3 600
Angola	2 199	278	65	33	35
Cameroon	1 462	1 771	1 022	834	315
Congo, Dem. Rep. of	1 306	1 610	1 019	383	350
Kenya	1 286	1 726	1 377	766	750
Madagascar	1 103	1 092	780	490	571
Tanzania	856	875	779	793	799
Rwanda	376	583	347	314	246
Burundi	373	526	476	312	161
Central African Republic	180	271	173	68	25
Togo	155	251	223	143	100
Sierra Leone	135	163	47	53	70
Liberia	111	106	6	9	10
Guinea	56	86	168	397	400
Nigeria	49	29	46	48	42
Ghana	46	12	51	29	60
Zimbabwe	46	163	136	74	7
Congo, Rep. of	33	35	5	3	3
Benin	18	33	0	0	0
Gabon	7	25	3	1	1
Malawi	3	47	84	33	21
Equatorial Guinea	0	9	2	0	0
Zambia	0	7	35	81	8

* Estimated

In thousand 60kg bags

Table 2: Average production in 2010s and world ranking

	2010s	% Shares	
World	**138 821**		
South America	63 778	45.94%	
Asia & Oceania	40 696	29.32%	
Central America & Mexico	18 204	13.11%	
Africa	16 143	11.63%	
Country		**% Shares**	**World Ranking**
Ethiopia	6 783	4.89%	5
Uganda	3 330	2.40%	11
Côte d'Ivoire	1 753	1.26%	13
Tanzania	825	0.59%	18
Kenya	756	0.54%	20
Madagascar	556	0.40%	22
Cameroon	440	0.32%	25
Guinea	374	0.27%	26
Congo, Dem. Rep. of	336	0.24%	28
Burundi	281	0.20%	29
Rwanda	270	0.19%	30
Togo	125	0.09%	34
Central African Republic	65	0.05%	37
Sierra Leone	61	0.04%	38
Ghana	58	0.04%	39
Nigeria	43	0.03%	41
Angola	33	0.02%	43
Malawi	22	0.02%	44
Liberia	10	0.01%	48
Zambia	10	0.01%	49
Zimbabwe	8	0.01%	50
Congo, Rep. of	3	0.00%	51
Gabon	1	0.00%	54
Benin	0	0.00%	55
Equatorial Guinea	0	0.00%	56

Table 3: Coffee farmer population and acreage

Country	Number of			Average area ha	% Production share		Total population estimates	Rural population as % of total population
	Farmers	Workers	Total		Smallholdings	Estates		
Total Africa (25)	**10 847 432**	**78 037**	**10 925 469**	**2 477 935**			**656 133 000**	
Angola	35 853	300	36 153	52 200	97.00%	3.00%	20 609 000	58.00%
Uganda	1 713 523	2 000	1 715 523	282 284	97.00%	3.00%	32 939 000	85.00%
Côte d'Ivoire	650 000	20 000	670 000	360 000	98.00%	2.00%	21 395 000	47.00%
Ethiopia	3 500 000	50 000	3 550 000	509 000	95.00%	5.00%	84 321 000	81.00%
Cameroon	650 000	800	650 800	140 000	96.00%	4.00%	19 406 000	47.00%
Congo, Dem. Rep. of	700 000	600	700 600	200 000	90.00%	10.00%	65 966 000	59.00%
Madagascar	350 000	700	350 700	200 000	100.00%	0.00%	20 696 000	66.00%
Kenya	700 000	1 300	701 300	160 000	60.00%	40.00%	38 610 000	75.00%
Tanzania	900 000	600	900 600	229 000	95.00%	5.00%	43 188 000	70.00%
Burundi	600 000	60	600 060	60 000	100.00%	0.00%	10 200 000	89.00%
Togo	62 282	56	62 338	37 768	90.00%	10.00%	6 191 000	61.00%
Rwanda	700 000	80	700 080	42 000	99.00%	1.00%	10 718 000	73.00%
Central African Republic	150 000	300	150 300	60 000	80.00%	20.00%	5 000 000	61.00%
Sierra Leone	25 000	60	25 060	2 000	99.00%	1.00%	5 400 000	61.00%
Guinea	32 000	80	32 080	46 000	99.00%	1.00%	10 537 000	64.00%
Ghana	4 182	35	4 217	35 000	97.00%	3.00%	24 223 000	47.00%
Liberia	25 000	30	25 030	2 000	98.00%	2.00%	3 477 000	51.00%
Nigeria	10 000	200	10 200	25 000	96.00%	4.00%	177 500 000	54.00%
Congo, Rep. of	22 000	90	22 090	12 000	98.00%	2.00%	4 043 000	35.00%
Benin	8 000	25	8 025	15 000	100.00%	0.00%	10 300 000	57.00%
Gabon	1 800	45	1 845	2 000	98.00%	2.00%	1 505 000	13.00%
Malawi	6 000	400	6 400	3 500	25.00%	75.00%	13 102 000	84.00%
Equatorial Guinea	600	16	616	1 200	100.00%	0.00%	700 000	60.00%
Zambia	180	60	240	1 200	1.00%	99.00%	13 046 000	60.00%
Zimbabwe	1 012	200	1 212	783	75.00%	25.00%	13 061 000	67.00%
Average								**61.00%**

Table 4 : African domestic consumption and population

	Total population (Thousands)	Domestic consumption in 2013/14 (tonnes)	Per capita consumption (kg)	% share of total African Consumption
African producing countries	**656 133**	**305 580**	**0.466**	**100.00%**
Angola	20 609	1 800	0.087	0.59%
Uganda	32 939	8 400	0.255	2.75%
Côte d'Ivoire	21 395	19 020	0.889	6.22%
Ethiopia	84 321	219 000	2.597	71.67%
Cameroon	19 406	4 140	0.213	1.35%
Congo, Dem. Rep. of	65 966	12 000	0.182	3.93%
Madagascar	20 696	28 020	1.354	9.17%
Kenya	38 610	3 000	0.078	0.98%
Tanzania	43 188	2 820	0.065	0.92%
Burundi	10 200	120	0.012	0.04%
Togo	6 191	120	0.019	0.00%
Rwanda	10 718	60	0.006	0.02%
Central African Republic	5 000	480	0.096	0.16%
Sierra Leone	5 400	300	0.056	0.10%
Guinea	10 537	120	0.011	0.04%
Ghana	24 223	120	0.005	0.04%
Liberia	3 477	300	0.086	0.10%
Nigeria	177 500	2 400	0.014	0.79%
Congo, Rep. of	4 043	180	0.045	0.06%
Benin	10 300	0	0.000	0.00%
Gabon	1 505	0	0.000	0.00%
Malawi	13 102	60	0.005	0.02%
Equatorial Guinea	700	0	0.000	0.00%
Zambia	13 046	0	0.000	0.00%
Zimbabwe	13 061	240	0.018	0.08%

Table 5: Price paid to coffee growers as percentage share of futures market prices
Arabica coffee

	Burundi	Cameroon	Ethiopia	Kenya	Madagascar	Malawi	Rwanda	Tanzania	Uganda	Zambia
1990	61.9%	34.4%	65.1%	64.6%	n.a.	90.5%	79.1%	43.5%	16.3%	95.7%
1991	61.7%	31.7%	76.5%	56.8%	n.a.	79.6%	56.5%	55.5%	33.2%	78.9%
1992	86.9%	42.2%	89.8%	42.5%	n.a.	71.4%	71.8%	72.1%	29.3%	51.3%
1993	81.7%	32.6%	86.5%	66.8%	n.a.	80.4%	63.4%	53.7%	35.1%	76.4%
1994	41.6%	60.5%	75.1%	104.6%	n.a.	63.3%	33.9%	42.6%	42.0%	60.5%
1995	38.9%	58.6%	79.0%	96.3%	60.0%	86.1%	37.7%	59.6%	46.8%	47.6%
1996	46.8%	72.8%	60.9%	99.0%	85.2%	86.0%	49.9%	56.3%	47.7%	73.3%
1997	32.4%	26.8%	55.8%	112.9%	36.0%	66.7%	34.6%	72.7%	48.7%	74.8%
1998	41.4%	52.9%	72.8%	142.5%	39.9%	80.4%	44.1%	71.8%	56.5%	103.6%
1999	43.7%	83.0%	61.6%	98.8%	40.8%	72.9%	42.6%	61.9%	40.7%	112.4%
2000	39.5%	35.1%	59.7%	77.2%	164.8%	60.9%	36.0%	57.4%	41.3%	97.1%
2001	54.7%	32.4%	74.4%	117.9%	109.7%	78.9%	39.5%	59.2%	45.4%	111.7%
2002	51.2%	43.1%	47.1%	118.7%	127.2%	69.8%	31.4%	45.5%	46.8%	105.2%
2003	38.1%	54.1%	53.0%	63.0%	132.7%	60.7%	38.1%	38.0%	44.6%	81.2%
2004	34.4%	n.a.	61.4%	89.3%	58.9%	65.0%	37.0%	33.2%	46.8%	81.0%
2005	38.5%	n.a.	57.7%	n.a.	45.6%	75.2%	41.5%	39.2%	51.9%	78.3%
2006	56.5%	n.a.	51.9%	n.a.	n.a.	75.3%	n.a.	38.1%	49.3%	89.2%
2007	66.0%	65.8%	57.3%	n.a.	n.a.	66.0%	n.a.	49.1%	53.4%	87.4%
2008	63.2%	58.0%	52.6%	n.a.	n.a.	55.9%	n.a.	46.4%	53.7%	92.8%
2009	66.7%	51.4%	60.0%	n.a.	n.a.	71.1%	n.a.	n.a.	47.2%	90.8%
2010	51.9%	n.a.	51.7%	n.a.	n.a.	58.3%	n.a.	n.a.	52.8%	72.7%
2011	n.a.	n.a.	56.7%	n.a.	n.a.	n.a.	n.a.	n.a.	57.4%	33.1%
2012	n.a.	n.a.	57.4%	n.a.	n.a.	n.a.	n.a.	n.a.	51.2%	n.a.
2013	n.a.	64.0%	58.7%	n.a.	n.a.	n.a.	n.a.	n.a.	54.1%	n.a.

n.a.: Not available

Table 5: Price paid to coffee growers as percentage share of futures market prices
Robusta coffee

	Angola	Cameroon	Central Africa Rep.	Côte d'Ivoire	Gabon	Madagascar	Tanzania	Togo	Uganda
1990	171.2%	56.6%	73.5%	66.8%	86.8%	64.9%	34.0%	58.4%	15.1%
1991	204.6%	56.2%	82.3%	72.5%	97.9%	51.1%	38.4%	64.3%	26.6%
1992	117.2%	63.3%	88.5%	82.9%	134.4%	59.0%	38.7%	77.8%	23.4%
1993	25.2%	36.9%	50.7%	58.7%	102.0%	76.9%	25.2%	48.0%	30.4%
1994	NA	26.4%	28.9%	26.3%	24.5%	38.9%	21.2%	23.0%	41.0%
1995	n.a.	44.0%	48.3%	50.2%	34.6%	49.6%	37.7%	51.9%	50.5%
1996	n.a.	68.5%	60.5%	77.4%	53.6%	81.9%	43.2%	84.0%	50.2%
1997	n.a.	51.9%	51.1%	52.4%	50.5%	66.0%	123.3%	59.8%	55.3%
1998	n.a.	47.7%	49.6%	52.5%	65.8%	63.2%	36.9%	65.4%	57.4%
1999	n.a.	48.9%	46.4%	60.6%	92.1%	59.4%	36.7%	67.5%	56.6%
2000	129.0%	75.9%	45.6%	59.5%	127.4%	271.8%	38.1%	57.1%	50.2%
2001	77.8%	88.3%	55.3%	0.0%	200.4%	216.0%	21.8%	64.0%	45.8%
2002	41.4%	62.0%	46.1%	34.6%	172.3%	215.2%	16.6%	70.6%	49.2%
2003	19.4%	65.3%	52.9%	51.9%	n.a.	163.9%	19.7%	66.7%	60.4%
2004	30.2%	n.a.	61.4%	44.9%	n.a.	60.1%	23.0%	66.7%	80.3%
2005	22.3%	n.a.	n.a.	24.0%	n.a.	64.6%	30.5%	59.6%	87.2%
2006	21.7%	n.a.	n.a.	46.8%	n.a.	69.8%	35.9%	74.8%	78.7%
2007	45.9%	70.2%	57.7%	41.8%	n.a.	88.6%	27.2%	72.2%	71.1%
2008	43.5%	54.1%	47.0%	53.4%	n.a.	n.a.	36.3%	79.2%	73.2%
2009	59.3%	55.8%	64.4%	55.4%	n.a.	n.a.	n.a.	66.1%	72.4%
2010	61.7%	n.a.	71.4%	31.3%	n.a.	n.a.	n.a.	58.8%	77.3%
2011	47.7%	n.a.	71.8%	28.1%	n.a.	n.a.	n.a.	73.2%	72.6%
2012	51.7%	n.a.	74.8%	50.4%	n.a.	n.a.	n.a.	74.6%	78.2%
2013	37.1%	78.7%	n.a.	67.4%	n.a.	n.a.	n.a.	78.8%	80.2%

n.a.: Not available

Table 6: Prices paid to coffee growers as percentage of exports unit value

Arabica growers

	Burundi	Cameroon	Ethiopia	Kenya	Malawi	Rwanda	Tanzania	Uganda	Zambia
1990	74.2%	47.9%	66.2%	76.4%	114.9%	92.4%	61.4%	19.9%	112.6%
1991	69.4%	43.3%	65.7%	55.8%	99.9%	66.5%	68.5%	40.1%	85.9%
1992	104.3%	60.0%	55.8%	35.3%	104.9%	91.7%	83.8%	38.4%	54.5%
1993	76.0%	52.7%	73.7%	35.1%	93.2%	69.6%	58.1%	45.1%	64.6%
1994	40.5%	143.0%	87.0%	123.4%	98.7%	33.7%	59.2%	57.5%	59.3%
1995	43.2%	94.1%	71.4%	83.8%	92.1%	48.0%	60.1%	56.0%	56.0%
1996	54.8%	95.0%	59.2%	93.2%	99.1%	67.4%	59.5%	63.8%	74.2%
1997	49.3%	42.7%	62.0%	93.2%	97.1%	38.2%	90.1%	67.5%	79.0%
1998	48.8%	58.1%	61.6%	92.0%	98.2%	52.8%	64.3%	73.7%	85.6%
1999	60.2%	101.0%	59.8%	80.4%	105.7%	45.8%	60.1%	65.2%	93.6%
2000	56.4%	43.4%	58.9%	86.8%	102.8%	34.5%	64.4%	64.7%	93.4%
2001	63.3%	31.7%	56.5%	103.1%	96.5%	25.5%	56.3%	68.8%	99.4%
2002	67.3%	32.7%	45.2%	86.2%	102.9%	48.5%	44.6%	69.5%	96.8%
2003	60.8%	39.6%	58.8%	53.9%	79.2%	53.7%	41.4%	73.6%	97.6%
2004	41.1%	N.A.	70.7%	61.7%	96.6%	54.4%	38.3%	72.4%	94.4%
2005	50.8%	N.A.	60.7%	n.a.	95.4%	56.6%	43.9%	67.0%	93.3%
2006	64.1%	n.a.	54.7%	n.a.	90.1%	n.a.	39.3%	65.1%	96.2%
2007	91.8%	83.7%	59.5%	n.a.	80.6%	n.a.	54.8%	71.7%	94.8%
2008	76.0%	64.9%	50.3%	n.a.	84.9%	n.a.	48.3%	67.2%	100.7%
2009	83.0%	62.8%	59.6%	n.a.	79.2%	n.a.	n.a.	64.1%	82.6%
2010	49.5%	n.a.	58.8%	n.a.	54.9%	n.a.	n.a.	73.1%	77.4%
2011	n.a.	n.a.	62.6%	n.a.	n.a.	n.a.	n.a.	78.9%	40.0%
2012	n.a.	n.a.	51.7%	n.a.	n.a.	n.a.	n.a.	65.6%	n.a.
2013	n.a.	71.9%	47.8%	n.a.	n.a.	n.a.	n.a.	69.1%	n.a.

n.a.: Not available

Table 6: Prices paid to coffee growers as percentage of exports unit value

Robusta growers

	Angola	Cameroon	CAR	Côte d'Ivoire	Gabon	Tanzania	Togo	Uganda
1990	209.1%	61.4%	93.9%	63.5%	135.8%	39.2%	52.0%	17.5%
1991	234.7%	58.3%	92.9%	75.2%	141.2%	41.4%	64.3%	29.6%
1992	137.7%	69.6%	104.9%	101.8%	189.3%	44.9%	68.8%	25.5%
1993	28.5%	54.0%	87.6%	78.2%	176.3%	28.0%	62.2%	36.1%
1994	n.a.	62.3%	60.1%	50.9%	39.0%	24.5%	62.7%	59.0%
1995	n.a.	55.4%	64.9%	50.6%	69.2%	38.1%	81.3%	59.0%
1996	n.a.	71.3%	78.2%	76.4%	80.6%	43.6%	74.9%	59.7%
1997	n.a.	77.7%	55.5%	69.6%	n.a.	137.6%	73.2%	68.8%
1998	n.a.	56.4%	60.3%	62.0%	91.9%	37.7%	81.3%	68.3%
1999	n.a.	54.2%	53.8%	61.6%	132.3%	34.9%	72.9%	69.0%
2000	125.6%	67.6%	53.5%	57.4%	169.6%	33.0%	63.4%	61.5%
2001	59.5%	63.2%	65.4%	0.0%	263.8%	15.4%	62.1%	51.3%
2002	4.6%	35.2%	84.1%	35.2%	128.8%	15.9%	67.1%	64.6%
2003	17.4%	41.0%	64.6%	51.2%	n.a.	21.0%	69.8%	71.2%
2004	28.2%	n.a.	68.2%	41.5%	n.a.	15.2%	67.4%	86.5%
2005	23.8%	n.a.	n.a.	25.1%	n.a.	30.1%	67.3%	90.0%
2006	22.1%	n.a.	n.a.	46.2%	n.a.	43.1%	81.0%	79.8%
2007	45.2%	82.1%	53.9%	41.7%	n.a.	33.4%	83.1%	78.6%
2008	37.3%	57.2%	39.8%	51.4%	n.a.	45.7%	83.1%	81.0%
2009	45.4%	64.2%	56.9%	53.9%	n.a.	n.a.	64.5%	78.1%
2010	51.5%	n.a.	74.1%	33.2%	n.a.	n.a.	72.7%	83.7%
2011	52.2%	n.a.	106.2%	27.5%	n.a.	n.a.	75.9%	80.2%
2012	50.3%	n.a.	114.7%	50.0%	n.a.	n.a.	79.9%	79.2%
2013	35.3%	81.4%	0.0%	62.8%	n.a.	n.a.	74.8%	81.2%

n.a.: Not available

Table 7: Productivity of coffee farm in Africa (average crop years from 2010/11 to 2013/14)

	Average production (Thousand 60-kg bags)	(Tonnes)	Average acreage (Hectares)	Yields (kg/ha)
Africa	**16 143**	**968 573**	**2 370 184**	**408.65**
Ethiopia	6 783	406 977	509 000	800
Uganda	3 330	199 771	282 284	708
Côte d'Ivoire	1 753	105 206	360 000	292
Tanzania	825	49 484	229 000	216
Kenya	756	45 355	110 000	412
Madagascar	556	33 367	150 000	222
Cameroon	440	26 372	120 000	220
Guinea	374	22 469	46 000	488
Congo, Dem. Rep. of	336	20 186	200 000	101
Burundi	281	16 864	60 000	281
Rwanda	270	16 181	42 000	385
Togo	125	7 506	40 000	188
Central African Republic	65	3 921	38 000	103
Sierra Leone	61	3 679	15 000	245
Ghana	58	3 497	15 000	233
Nigeria	43	2 575	50 000	51
Angola	33	1 971	52 200	38
Malawi	22	1 292	7 000	185
Liberia	10	612	2 000	306
Zambia	10	576	9 000	64
Zimbabwe	8	498	8 000	62
Congo, Rep. of	3	180	8 000	23
Gabon	1	35	1 500	24
Benin	0	0	15 000	0
Equatorial Guinea	0	0	1 200	0