



The  
World Bank  
Group  
www.worldbank.org

International  
Trade  
Department

By

Luz Diaz Rios  
Steven Jaffee

These notes summarize recent research on global trade issues. They reflect solely the views of the authors and not necessarily the views of the World Bank Group or its Executive Directors.

Trade Note  
35

## *Barrier, Catalyst, or Distraction?* **Standards, Competitiveness, and Africa's Groundnut Exports to Europe**

In recent years industrialized countries have sought to strengthen their food safety management systems to better protect consumers against long-standing and emerging risks. In the wake of a series of food safety scares or crises, strict measures are being adopted. These measures also reflect expanded trade in higher value food products, better scientific knowledge, and access to modern detection and mitigation methods.

Countries have a legitimate right to protect their consumers. But the concern is that more stringent food safety standards will hurt developing-country suppliers' market access or competitiveness. So, standards are often cast as barriers to trade. A less pessimistic view emphasizes the potential opportunities of the evolving standards environment—and the likelihood that some developing countries can turn these opportunities to their competitive advantage.

Among the most controversial food safety regulatory measures in its trade impacts has been the European Union's adoption of harmonized standards for mycotoxins, particularly for aflatoxins in groundnuts and groundnut products—stricter than standards established by the Codex Alimentarius Commission.<sup>1</sup>

It has been argued—and discussion remains ongoing—that the strict standards would not significantly lower the health risk to consumers. But they would impose serious costs or technical difficulties on the suppliers.

The discussions have also questioned EU methods of sampling and analyzing aflatoxins.

It is empirically difficult to determine definitively how one country or region adopting new or more stringent standards affects trade—because of the many repercussions of such standards, the varied responses, and the multitude of other factors affecting trade flows and competitiveness. Even so, there have been some attempts to measure the impacts. For aflatoxins, some of the most referenced studies on the trade impacts of the EU regulations come from Otsuki and others (2001a, 2001b). They predict large losses for Africa's trade in cereals, nuts, and dried fruit to Europe.<sup>2</sup>

After six years of harmonized standards, this note takes another look at the effects on edible groundnut exports from Sub-Saharan Africa, taking into account the many factors determining the region's trade competitiveness over several decades.

It argues that the “lost” trade that can be confidently attributed to the EU standards is very low. For most Sub-Saharan countries the EU standards were significant neither as a barrier to trade nor as a catalyst for proactive action. Sub-Saharan Africa's edible groundnut export sector had been gradually losing competitiveness for decades before the European Union implemented stringent standards. Market developments, macroeconomic conditions, sectoral policies, and agro-climatic shocks were important contributors. Above all, African suppliers,

<sup>1</sup> The EU levels were set at 2 ppb for aflatoxin B1 and 4 ppb for total aflatoxin in groundnuts for direct human consumption. In the case of groundnuts intended for further processing, the levels were set at 8 ppb for aflatoxin B1 and 15 ppb for total aflatoxin. The Codex established a level, set at 15 ppb, only for total aflatoxins in groundnuts intended for further processing; no level was set for aflatoxin B1. The EU regulation entered into force in January 1999.

<sup>2</sup> Their findings suggested that the trade of nine African countries would potentially decline by \$400 million under the proposed, stringent new EU standards,<sup>1</sup> whereas this trade might have increased by some \$670 million had the EU based its new harmonized standards on the guidelines of the *Codex Alimentarius* (Otsuki et al. 2001a). A second study, focusing only on edible groundnut exports from Africa, estimated that the new EU standard for aflatoxin would result in an 11 percent decline in EU imports from Africa, and a trade flow some 63 percent lower than it would have been had the Codex international standards been adopted (Otsuki et al. 2001b).

unable to meet emerging demand for consistent volumes and quality, were overtaken by competitors from Latin America and Asia.

### *Africa's groundnut trade—from dominant to marginal player*

Sub-Saharan Africa's share of the raw groundnut trade fell from about 90 percent during the 1960s to only 2 percent in 2005 (annex 1). Nigeria alone once accounted for 46 percent of global trade, and Senegal and Sudan together accounted for a fourth. The fate of Africa's position in the international raw groundnut trade changed dramatically during the 1970s,<sup>3</sup> particularly in the European Union, Africa's main export market (annex 2). Africa's declining share reflected unfavorable macroeconomic conditions, climatic shocks, adverse sector-specific policies in the leading producing and exporting countries, and market developments, including the emergence of new global suppliers that captured market share, competing on cost, quality, and supply reliability.

During the second half of the 1970s the competition between groundnut oil and substitute vegetable oil became fiercer. Global exports of soybean, sunflower, and palm products increased substantially. The importance of groundnut products in the world oilseed trade progressively declined with the availability of other vegetable oils, followed by a subsequent increase in demand for groundnuts for food in the next decade.

During the 1980s world trade in edible groundnuts increased by nearly 20 percent a year,<sup>4</sup> including both raw and prepared groundnuts. This growth opened opportunities for new participants to enter the international market. Argentina and China, in particular, emerged as major suppliers. And by the mid-1980s they had overtaken Sub-Saharan Africa as source of raw edible groundnuts (annex 3). Argentina is now the top supplier of raw edible groundnuts to the EU market, accounting for 35 percent of import value in 2005, followed by China, with a 24 percent market share.

Other suppliers are also gaining traction in the EU market. Brazil increased its share of raw edible groundnuts from less than 1 percent in 2001 to 6 percent in 2005. Nicaraguan suppliers have also successfully penetrated the market, and Egypt, after a temporary ban in 1999, recently increased its market share.

In 2005 Sub-Saharan Africa accounted for only 4 percent of EU import value of raw groundnuts, with South Africa accounting for half that. In prepared groundnuts the United States is the leader, followed by Argentina and China.

Lower competitiveness and limited demand for groundnut oil—along with an inability to shift industry focus to the edible confectionery market, a market with higher quality and safety requirements—helped marginalize Sub-Saharan Africa's global market position. The region's participation in the global trade of groundnuts and groundnut products has fallen in the dynamic (edible groundnuts) sectors and the less dynamic (oil/cake; annex 4).

Although the changes in the global groundnut trade during the 1970s and 1980s were significant, according to Badiane and Kinteh (1994), the decline of African raw groundnut exports was primarily the result of macroeconomic and sectoral policies that reduced producer incentives through direct or indirect taxation. In most Sub-Saharan exporting countries the sector faced heavy government involvement in input supply, marketing, and producer prices. Inefficient provision of quality seed and other agricultural inputs and too little supply chain coordination still constrain quality and productivity.

### *Upgrading steps to participate in edible groundnut trade*

Growing EU demand for edible groundnuts came with higher market requirements for product quality and safety (annex 5). Initially, EU buyer requirements centered on the specific characteristics preferred by the confectionery industry (taste and size).<sup>5</sup> Complying with these requirements required upgrades at the production level—replacing crop varieties and improving production technologies. With better knowledge of the factors associated with the prevention and control of aflatoxin contamination, production and processing upgrades gradually incorporated good agricultural practices (GAP) and the Hazard Analysis and Critical Control Points (HACCP) system. To further minimize risk, these improvements are combined with end-product inspections at different stages of the supply chain, implemented by officials in importing

<sup>3</sup> Raw groundnuts included shelled and in-shell groundnuts, currently reported in most international statistics as groundnut not roasted or otherwise prepared.

<sup>4</sup> Global trade of groundnuts comprises mainly raw and prepared and preserved edible groundnuts, processed products (oil, cake, and meal), and peanut butter.

<sup>5</sup> The generic term “confectionary” includes all groundnuts intended for human consumption in forms other than oil (Fabre and Mayeux 2006)

and exporting countries and by the buyers and exporters.

In China, process upgrades focused mainly on achieving productivity gains. China's source of international competitiveness came from its ability to deliver consistent quantity at competitive prices. Argentina, by contrast, combined an initial upgrade in production capacity (to supply consistent quality and quantities) with process upgrades (based on developing competitive advantages through a cycle of continuous improvements and innovations, all meant to supply high-quality, safe products to highly differentiated markets). Supply chain coordination and better collaboration between the private and public sectors were critical in facilitating the supply chain upgrades.

In Africa there have been several efforts to upgrade groundnut supply chains by introducing preferred varieties, changing production practices, and focusing attention on quality control. But progress has been uneven. Without sustained success in international competitiveness. As they have not achieved sustained gains in groundnut productivity and product quality, many of Africa's groundnut industries were ill-prepared to meet stringent official and buyer requirements for aflatoxin control and other food safety measures.

### *The adverse direct effects on developing country exports to the European Union—smaller than predicted*

Data on products found unacceptable for the EU market (notifications) and reported in the Rapid Alert System for Food and Feed (RASFF) show the loss associated with the harmonized standards—and the countries that suffered the losses. The finding: smaller losses than originally predicted.

True, notifications and consignment interceptions for groundnuts and groundnut products increased continuously since the late 1990s—from 20 in 1998 to 254 in 2006—reflecting stricter enforcement of the EU harmonized tolerance for aflatoxins. But the small volume of trade directly affected pales beside the growth in EU import volume and value.

Slightly more than 10,500 tons of raw groundnuts were intercepted by the EU authorities during 2004–06,

representing about 0.6 percent of the EU trade for the period. An increase did occur from year to year—from 2,828 tons in 2004 to 4,418 tons in 2006 (table 1). Notifications for peanut butter and other prepared groundnut products affected just 128 tons of product.

China and Argentina accounted for just under half of all EU notifications for groundnut products during 1999–2006. China alone accounted for nearly a third. But the proportion of total EU imports from Argentina affected was only 0.3–0.4 percent during 2004–06. China's proportion was 0.8–1.1 percent.

**Table 1. Intercepted trade of shelled and in-shell groundnuts—country shares**

	2004	2005	2006
Metric tons	2,827.90	3,321.70	4,418
Million dollars	2.7	3.1	3.9
	%	%	%
Argentina	19.4	14.1	26.6
China	39.6	39.6	27.7
USA	3.8	1.3	11.1
Brazil	5.5	24.2	14.3
India	6.9	0.0	0.0
Egypt	6.6	6.4	5.1
Nicaragua	7.0	0.6	0.0
Israel	1.4	1.6	2.5
S. Africa	0.0	3.8	2.4
Sudan	8.3	3.3	6.0
Malawi	0.0	1.7	0.7

Source: Data from the RASFF.

Sub-Saharan Africa accounted for more than 15 percent of the number of consignment interceptions on groundnuts and groundnut products over 1999–2006. Nearly all of the affected consignments from Ghana were of prepared products (mainly peanut butter), accounting for a minor volume of trade. Overall, the proportion of trade affected has been very small, though it varies among countries (table 2).

**Table 2. Value of EU raw groundnut imports from Sub-Saharan Africa intercepted for violative aflatoxin levels**

Country	2004 (US\$000)	Value of affected imports (US\$000)	%	2005 (US\$000)	Value of affected imports (US\$000)	%
Ghana	8,837	0		5,387	1.9	0.03
The Gambia	850	0		2,000	0.0	
Malawi	201	0		130	54.5	42.0
Sudan	1,017	217.0	21.3	1,845	104.4	5.7
Senegal	175	0		183	0.0	
South Africa	6,982	0		12,352	130.9	1.1
Zambia	4	0		20	0.0	
Total	18,066	217.0	1.2	21,917	291.7	1.5

Source: Calculations based on RASFF and COMTRADE data.

During 2004–06 only 3.5 percent of the raw groundnut trade intercepted led to full economic loss—destroyed consignments—with an estimated trade value from all sources of only \$230,000.<sup>6</sup> In fact, most consignments found in noncompliance (80 percent of the total volume intercepted) were redispached, returned to the dispatcher, or underwent physical treatment. For another 6 percent a “change of destination” was applied, meaning a use different from that originally intended. About 4 percent was blocked, but no further action was specified in the notifications. By contrast, for peanut butter and prepared groundnuts, 74 percent of the 128 tons affected by notifications were destroyed.

Adverse direct effects from the EU aflatoxin regulations also come from costs associated with the measures for noncompliant consignments. Estimates for 2004 and 2005 suggest that treatment costs were just under half a million dollars, for treated product with a market value of some \$2 million. Suppliers from some countries—especially China and Egypt—also incur non-trivial transaction costs in relation to intercepted consignments that are redispached to third countries or returned to the country of origin. The values of subsequent transactions are also certainly lower than originally anticipated, and shipping costs grow. But though treatment and transaction costs affect the profitability of individual companies, they are small in the context of the overall groundnut product trade. And they are almost certainly much lower than the normal price discounts buyers impose for quality-related shortcomings.

Hypothetical estimates for 1999–2006 suggest direct losses for all suppliers combined of about US\$13–15 million—relatively small against total EU groundnut import values during the period of \$3.8 billion for raw groundnuts and \$1.5 billion for prepared groundnuts.

In addition, a significant proportion of intercepted trade can be sold as edible groundnuts after undergoing physical treatment, for purposes other than human consumption (bird feed, crushing, and so on) in the EU market, or as edible groundnuts in non-EU markets. Even allowing for transaction costs, the economic losses would likely be much lower than the \$15 million estimated here.

For Sub-Saharan Africa, the direct effects of the regulations also appear small. Analysis of 61 percent of the notifications on Sub-Saharan raw groundnuts indicates that a little more than 949 tons were intercepted during 2004–06. So, the total volume affected during 1999–2006 may have been about 1,600 tons, with an estimated value of \$1.2–\$1.5 million. Against the region’s \$175 million in sales to Europe over the period, the affected trade appears insignificant. Taking into account that a large proportion of the product intercepted underwent physical treatment, the value of “lost” trade becomes even smaller.

This analysis suggests a direct trade loss or financial cost associated with treatment of just a few hundred thousand dollars for Sub-Saharan Africa. There certainly may be some further revenue losses—for example, associated with African firms having to shift their commercial strategy from exports to domestic sales, because of concerns about their inability to comply with EU standards. But the losses involved have been a tiny fraction of predictions and estimates in previous studies.

Had the European Union adopted the less stringent Codex standards, would Africa’s groundnut exports to the European Union have been dramatically higher?

This is most unlikely. RASFF data show that nearly 80 percent of African consignments intercepted by EU authorities over 2004–06 would have failed even the less strict Codex standard.

Had the European Union adopted the Codex standards, the primary beneficiaries would have been Africa’s main competitors in the EU market, especially Argentina, the United States, Brazil, China, and Egypt. These countries made considerable investments to upgrade their production systems to boost quality and productivity gains and, more recently, to meet safety goals by preventing and reducing aflatoxin contamination (box 1).

---

<sup>6</sup> Interruption of a consignment does not necessarily mean full economic loss for the business operator. EU authorities can apply different measures to deal with products already imported or at external borders that are found to be noncompliant with maximum aflatoxin levels. For product rejected at an external border, EU authorities can: (1) order destruction of the consignment; (2) authorize special treatment (treatment or processing to bring the food into line with the requirements of Community law, or with the requirements of a third country of redispach, or processing in any other suitable manner for purposes other than animal or human consumption); (3) permit re-dispatch of the product to outside the Community; or (4) take other appropriate measures, such as use of the product for purposes other than that originally intended.

### Box 1. Would exporting countries have been better off if the EU had adopted the Codex Standard?

An argument has been made that the Codex standard adequately protects human health, and that application of the Codex standard by the European Union would enable a significant expansion of groundnut trade over and above that which would occur in the context of the more stringent standards. Analysis of the aflatoxin levels reported in notifications during the period 2000-06 suggest that any gains from more lax standards would not accrue primarily to Sub-Saharan Africa:

- Of the notified consignments from all sources, 52 percent had aflatoxin readings exceeding the Codex standard. Half of these consignments—26 percent of all intercepted consignments—had aflatoxin levels above 50 parts per billion.
- There are enormous differences among countries. The United States, Argentina, and Brazil have been most hurt by the more stringent standards. Some 71 percent of the U.S. notifications and 63 percent of notifications from Argentina and Brazil had aflatoxin levels in compliance with Codex. So, nearly two-thirds of these interceptions would not have taken place had the European Union enforced the Codex standard. Suppliers from these countries could have saved considerably in product treatment costs.
- About half of China's intercepted consignments would have been compliant with Codex. Only about a third of intercepted consignments from Egypt, Nicaragua, India, and South Africa would have been compliant. More than half the intercepted consignments from India and Egypt had aflatoxin readings above 50 parts per billion.
- Sub-Saharan Africa fares the worst. Some 83 percent of the region's intercepted consignments would have been noncompliant with the Codex standard. None of the intercepted consignments from Malawi, Uganda, or Zimbabwe would have met the Codex standard, and the majority of intercepted Ghanaian consignments had aflatoxin levels above 50 parts per billion.

The data conclusively indicate that, overall, exporting countries would face difficulties in providing safety assurance even if the Codex standards were applied. Even with less intercepted product and lower associated transaction costs, the less stringent Codex standards would primarily benefit countries and suppliers with effective systems to prevent and control aflatoxin along the supply chain and with other competitive advantages in groundnut products.

#### *Exporting countries have complied with EU regulations in different ways*

More stringent and complex EU regulatory requirements brought significant challenges to exporting countries supplying the EU market. They also created opportunities. In some countries the response was a proactive, forward-looking strategy seeking to reinforce competitive advantages—as in Argentina and Nicaragua. In other countries the response was reactive and defensive, seeking to adjust in the face of adverse trade events. In China and Egypt, for example, significant reactive measures came after groundnut interceptions (and a temporary ban in Egypt) and critical inspection missions by EU authorities. China has made significant regulatory changes, implementing a “Shock Tactic Policy” to promote safety improvements along the supply chain.

In Sub-Saharan Africa reactive measures to prevent aflatoxin contamination have also been taken in some countries. Ghana is moving forward on implementing good manufacturing processes and HACCP principles in small and medium-size enterprises. In Malawi the National Smallholder Farmers' Association of Malawi and the International

Crops Research Institute for the Semi-Arid Tropics collaborate on implementing cost-effective methods for aflatoxin detection. And in Senegal the French Agricultural Research Centre for International Development and the main Senegalese producers' organization (Association Sénégalaise pour la Promotion du Développement à la Base, ASPRODEB) are implementing the “Edible Groundnut Program,” aiming to ensure high quality product to satisfy demand for confectionary groundnuts for export.

The good news is that considerable research and other efforts are yielding promising insights on ways to prevent and reduce aflatoxin contamination in groundnut production, storage, and trade in Sub-Saharan Africa—and to achieve compliance with very stringent standards. Important challenges still remain in implementation, in achieving the necessary collective action, and in public-private sector collaboration to ensure the cost-effectiveness of adopted approaches.

For most African supply chains it is more accurate to refer to an aflatoxin management problem rather than to a compliance problem. Policymakers' focus on the alleged trade barrier aspect of the EU's aflatoxin standards has contributed little to exports or public health in Sub-

Saharan Africa. And it is not a foundation for better strategy development and higher investment.

Research undertaken by several organizations in the region are making available appropriate and cost-effective



### *Redirecting trade and shifting product foci—only modest effects*

Data suggest that a significant proportion of the slight growth in African exports since the mid-1980s has come from satisfying demands in alternative, less strict regional markets (annex 6). And more and more commercial activity now centers on groundnut oil crushing for the domestic market. Sub-Saharan production of groundnut oil increased sharply over the past two decades, rising from just over 400,000 metric tons in 1985 to about 1.2 million metric tons in 2005. Nigeria is by far the largest producer, accounting for slightly less than 47 percent of the region's groundnut oil output in 2006 (annex 7).

While the European Union regulatory changes for aflatoxin altered commercial strategy and investment patterns in some firms, the general groundnut restructuring and performance patterns in Sub-Saharan Africa have been affected only modestly.

### *Conclusions and Ways forward*

For some countries supplying edible groundnuts to the EU market (Egypt and China), the stringency of the EU aflatoxin regulation did act as a temporary barrier to trade, and subsequently (in a reactive way) as a catalyst for the modernization of the supply chain and for improved collaboration between the public and the private sector.

The catalytic role of EU standards enforcements is more clearly seen in the case of the Argentine industry, which has used compliance as a means to improve the industry's competitive position and gain market participation.

In contrast, for most SSA countries, the stringency of the EU standards has served neither as a significant barrier to trade nor as a significant catalyst for proactive action. Sub-Saharan suppliers' inability to build a reputation for reliable supply, consistent quality, and safe product contributes to their marginalization in international groundnut trade. Upgrades at the production and harvest levels, to improve basic quality characteristics and ensure consistency, are needed, along with safety improvements.

measures for aflatoxin prevention along the supply chain. The challenges for the private and public sectors—and for the donor community—are to facilitate the adoption of these technologies and approaches so as to achieve desired trade, domestic commercial, and public health objectives.

### *References*

Badaine, C., and S. Kinteh. 1994, May. *Trade Pessimism and Regionalism in African Countries: The Case of Groundnut Exporters*. International Food Policy Research Institute.

Diop et al. 2004. *Groundnut Policies, Global Trade Dynamics, and the Impact of Trade Liberalization*. The World Bank. Washington, DC. 2004.

Fabre, P., and A. Mayeux. 2006. France and the CGIAR: Delivering Scientific Results for Agricultural Development—Developing a High-Quality Groundnut Industry: A Challenge for Producer Organizations in Developing Countries to Meet Market Demands.

Otsuki, T., et al. 2001a. "Saving Two in a Billion: Quantifying the Trade Effect of European Food Safety Standards on African Exports." *Food Policy*, 26(5), 495–514.

Otsuki, T., et al. 2001b. "What Price Precaution? European Harmonization of Aflatoxin Regulation and African Groundnut Exports." *European Review of Agricultural Economics*, 28(2), 263–83.

European Rapid Alert System for Food and Feed (RASFF): [http://ec.europa.eu/food/food/rapidalert/resources/publications\\_en.htm](http://ec.europa.eu/food/food/rapidalert/resources/publications_en.htm)

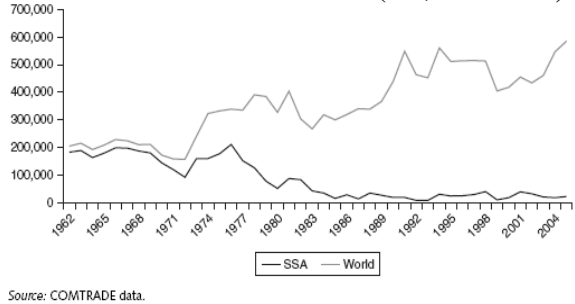
ANNEXES

Annex 1. Sub-Saharan Africa’s share of world raw groundnut exports by volume, 1962–2005

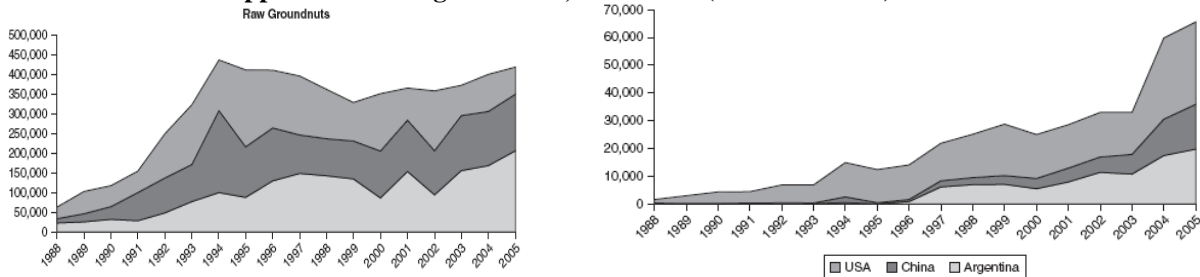
Period	Share of World Exports (%)			
	SSA	Nigeria	Senegal	Sudan
1962–1969	88.6	45.6	17.4	8.2
1970–1981	43.5	8.5	2.7	15.2
1982–1991	4.4	0.0	0.6	1.7
1992–2005	5.2	0	1	0.4

Source: COMTRADE data.  
\*Raw groundnuts include in-shell and shelled groundnuts.

Annex 2. EU Imports of raw groundnuts from Sub-Saharan Africa and the world (US\$ thousands)

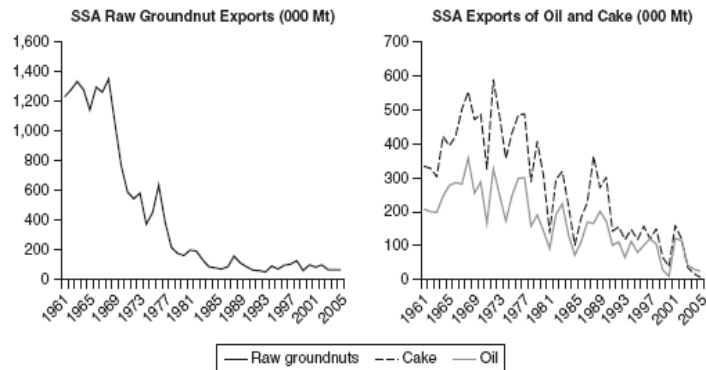


Annex 3. Main EU suppliers of edible groundnuts, 1988–2005 (US\$ thousands)



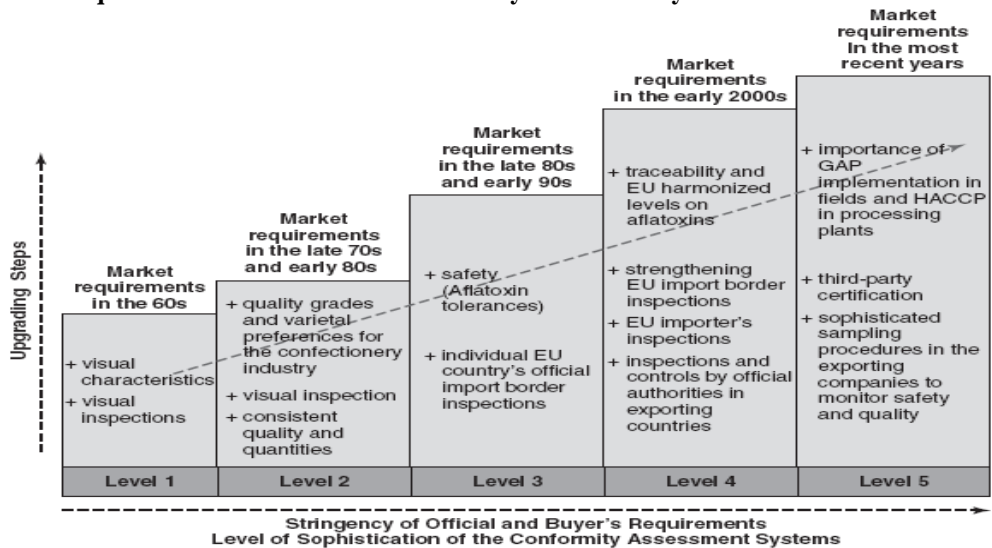
Source: COMTRADE data

Annex 4. Sub-Saharan Africa’s exports of groundnuts and groundnut products, 1961–2005 (thousand tons)

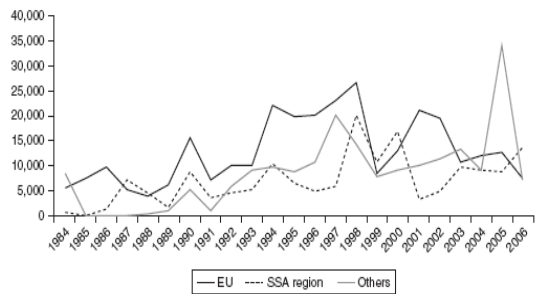


Source: COMTRADE data.

Annex 5. Evolution of EU market requirements and associated conformity assessment systems for groundnuts

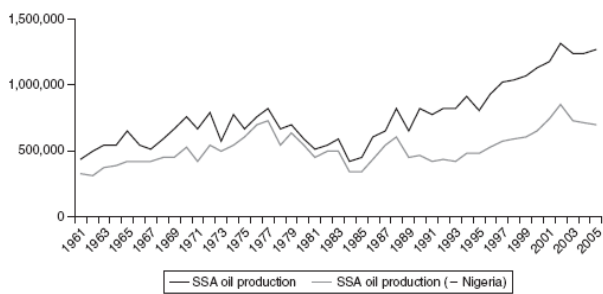


**Annex 6. Destination of Sub-Saharan Africa’s exports of raw groundnuts, 1984–2005 (US\$ thousands)**



Source: FAO data.

**Annex 7. Production of groundnut oil in Sub-Saharan Africa, 1961–2005 (million tons)**



Source: FAO data.