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Agro-based industries and growth: prospects for Sub-Saharan Africa

Sub-Saharan Africa's share in world agricultural trade remains low. Exports of high-value added agricultural or agro-based goods are still modest, but global demand for these products is highly dynamic and will continue to increase. This brief argues that growth based on the development of agro-based industries in Africa is possible. While creating competitive advantages in the agricultural sector presents special challenges for the continent, policy lessons from successful experiences in Asia and Latin America could be utilized to promote sustainable development and resource-based growth.

A large number of African countries are highly dependent on agriculture. While on average the agricultural sector accounts for one-fourth of GDP, in some Least Developed Countries (LDCs) this share reaches or surpasses 50 per cent. Over 30 per cent of the African population depends on agriculture for their livelihood, but in some of the poorest countries this share reaches 90 per cent. Overall, agricultural exports from African countries (including raw materials and processed foods) represent half of total merchandise exports, and exceed 80 per cent in some cases.

Agricultural growth can play a central role in the process of overall economic growth and in poverty reduction. For some developing countries, the rise in imports of agricultural products by developed countries has constituted an opportunity to upgrade and diversify their agriculture and agro-industry, which in turn has stimulated growth. For the most part, however, Africa has not been able to benefit from these trends. Part of the reason lies in the positioning of Africa in world agricultural markets. In a nutshell, Africa has mostly specialized in commodities where it faced stiff competition from other developing countries and low world prices rather than in high value-added agricultural products.

This Brief was written by Mónica Kjöllerström, from the Department of Economic and Social Affairs of the United Nations Secretariat (UN-DESA). It is based on Chapter 2.1 of the book *Industrial Development for the 21st Century: Sustainable Development Perspectives*, recently published by UN-DESA.

Africa is highly dependent on commodity exports

Africa's agricultural exports are concentrated in a few commodities (coffee, tea, cocoa, sugar, cotton, bananas). The largest importer of such products from Africa is by far the EU, now followed by China and the US. For almost half of the countries in Sub-Saharan Africa, agricultural commodities are the main exports. For many of them, reliance on one single agricultural commodity export reaches between 50 and 75 per cent of total commodity exports.

With the exception of cotton, over the last two decades African producers have steadily been losing market share to Asian and Latin American competitors. This holds even for cocoa, although Africa remains the dominant supplier. Stagnant yields and inability to improve significantly quality and price through greater value-addition and differentiation stand in stark contrast with trends in competing countries.

Exports of high value agricultural products are still modest

Fresh agricultural produce are typically equated with low tech, low R&D because of the limited amount of processing in their production. However, many of them are now intensive in knowledge and services and can have more value-added than some processed industrial goods. Significant trade in fresh fruits and vegetables, for instance, is a relatively new phenomenon, linked to innovations in post-harvest systems and animal traceability, in logistics and in marketing.

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For the purpose of this Brief, high-value agricultural products are defined to include meat and meat products; fish, fish products and sea food; dairy products; vegetables, fruits and nuts (fresh, preserved and prepared); spices; vegetable oils and fats; and inedible ornamentals such as cut flowers (see Table 1). While at the aggregate level only high-tech goods gained market shares between 1990 and 2004, a few of these high-value agricultural products were highly dynamic, growing above the median, and even above the average growth rate for total world trade. For instance, imports of fresh fish fillets and of palm oil have grown faster than many manufactures, increasing their shares in world trade by around 80 per cent each between 1990 and 2004.

The EU15 and the United States combined accounted for almost half of world imports of high value agricultural products in 2004. Africa accounted for 12 per cent and 1 per cent, respectively, of their total imports of such products. The EU is by far Africa's main market for its high value agricultural exports, accounting for almost three-fourths of the total. Africa has a significant market share of the European market in a relatively large number of product categories (Figure 1). For some of those product categories, Africa has succeeded in increasing its market share, such as cut flowers, oranges, grapes, fresh or chilled fish fillets, and pears. For others, such as pineapples, Africa remains one of the main suppliers, but has been losing market share in favour of competitors.

In the United States, Africa is still a small supplier (or not an exporter at all) in many product categories. Africa is already a large supplier, however, for products such as vanilla and cloves; oranges; raisins; edible nuts; mandarins; mixtures of fruit or vegetable juices; flours of leguminous vegetables, fruits, roots and tubers. In the US market, the main competition for these products comes from developing countries in Latin America and from China, but also from developed countries, such as Australia for oranges and Spain for mandarins. Imports of high value agricultural products from Africa have grown at a significantly faster rate than imports of these products from the rest of the world. Africa's market shares have grown for all these products, in some instances from zero in 1990. Very large market share increases (although often from a low base) have also taken place in other product categories, including frozen fish fillets, some juices and cut foliage.

Only a handful of Africa's least developed countries (LDCs) are supplying high value agricultural products to the EU: Uganda and Tanzania, in the case of fresh fish fillets (Box 1); Mozambique and Malawi, in the case of nuts; Madagascar and Comoros in the case of vanilla and cloves; Zambia in the case of vegetables. Among non-LDC countries, Swaziland is emerging as a supplier of vegetables, fruits and flowers, while Botswana and Namibia are important suppliers of beef. Meanwhile, a few countries in West Africa (Ivory Coast, Ghana, Cameroon) are still among the leading suppliers of the European market for tropical fruits as well as producing for

Box 1

Development of the fish fillet industry in Uganda and Tanzania

After Iceland and Norway, Tanzania and Uganda are the two largest suppliers of fresh fish fillets in the EU market, with market shares of 14 per cent and 13 per cent, respectively, as of 2004. Fishing exports represented approximately 10 per cent of total merchandise exports in both countries, of which fresh fish fillets accounted for 70 per cent and 60 per cent, respectively.

While tariffs imposed by developed countries on fish products from developing countries are either zero or low, sanitary standards and technical requirements, for example with respect to packing and labeling, constitute important restrictions to developing country exports. Imports to the EU and the US must have an original health certificate from approved establishments and bear the name of the country of origin. Health and quality standards are based on the stringent HACCP (Hazard Analysis and Critical Control Point) requirements.

Despite these barriers, Uganda and Tanzania were able to respond to increased demand for freshwater fish in the beginning of the nineties and have become important suppliers of an essentially "new" product, fish fillets, which happens to be among the most dynamic commodities in world trade and has a high unit value.

Production of fish fillets has stimulated the development of the animal feed sector, which uses fish waste as a main input, as well as the packing and logistics sectors. This required substantial investments in upgrading infrastructure and domestic capabilities. In Uganda, the Fish Processors and Exporters Association (UFPEA) sought technical assistance from donors. In cooperation with the government, it established a reliable, EU and US-compliant fish safety assurance system. UFPEA members themselves undertook significant investments, with technical assistance from the United Nations Industrial Development Organization (UNIDO).

the local processing industry, but they face increasing competition from Latin American producers.

Africa is either totally absent in the EU as a supplier or has a market share below one per cent for most meats (notably, the most dynamic ones in world trade, such as fresh poultry and pork), dairy products, eggs, and most vegetable oils, with the exception of peanut oil, the least dynamic among them, of which Senegal and Gambia are large exporters. Some of these products face steep competition from established, large supplying countries, very high sanitary and phyto-sanitary (SPS) barriers, or high protectionism., The same applies, however, to other products where Africa has increased its market share significantly. For example, although African exports of fish fillets or cut flowers benefit from preferential market access in both the EU and the US, they also face steep SPS barriers, suggesting that a process of upgrading has occurred.

In conclusion, Africa has been increasing its market share, sometimes very significantly, for some of the high unit value agricultural products. However, very few countries have been participating in this trend; and while it seems clear that there is potential for some African countries to position themselves in the

Table 1

Defining high-value agricultural products

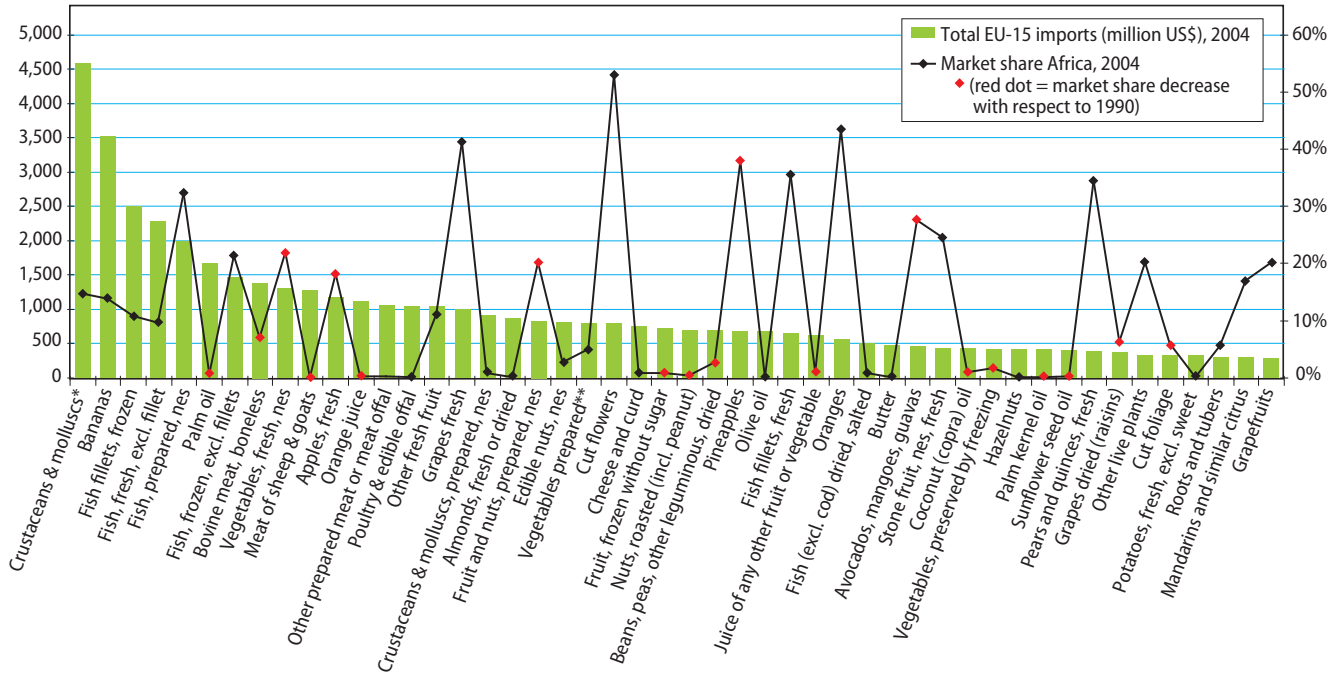
In this Brief, high value-added agricultural products are defined as groups of products at the 5 digit level included in the following categories of the SITC Rev.2 classification:

011, 012, 014	Meat and meat products
022, 023, 024	Dairy products
034, 035, 036, 037	Fish, fish products and sea food
054, 056	Vegetables, roots and tubers, and preparations
057, 058	Fruit, nuts and fruit preparations
075	Spices
292	Live plants, cut flowers and foliage
423, 424	Fixed vegetable oils and fats

Statistics used for construction of the graphs were computed using data from UN-COMTRADE for world trade between 1990 and 2004. Import values were used to estimate world trade, which excludes intra-EU trade. COMTRADE reports trade volumes only for a small number of products (basically, primary commodities). The analysis is thus exclusively based on nominal trade values. During this period, the median annual growth rate in world trade at the product level was 5.3 per cent, whereas the average growth rate was 7.1 per cent.

Figure 1

Africa's insertion in the EU-15 market for some high-value agricultural goods



* fresh, frozen, salted ** other than vinegar, nes

Source: Author's calculations, based on UN-COMTRADE data.

high-value product and agro-industrial markets, this potential has for the most part not yet been realized.

Lessons from examples of successful development of agro-based industries

Examples exist on other continents of countries which have built dynamic agriculture and agro-industries as key pillars of their economic development. Research suggests that successful countries build on their comparative advantage in primary commodities through investing in innovation to increase value-added. But how do countries discover "new" natural resource-based products or upgrade traditional ones?

The role of governments. The experience of countries like Chile and Malaysia shows how horizontal and vertical diversification has led to successful natural resource-based growth. Both countries are now large world suppliers of agricultural products for which demand is growing and which are characterized by relatively high unit values. In both cases, the products that eventually became success stories were not produced traditionally; rather, they are "new" products.

The experience of Chile and Malaysia suggests that governments can play a central role in the development of dynamic production clusters, by providing infrastructure, business services, technical upgrading and export assistance to the private sector (Boxes 2 and 3). While some "new" goods and services in the sense above are discovered solely through private entrepreneurship, in many instances public-private partnerships have been instrumental in starting new activities that later proved to be highly profitable, and evolution towards successful clusters has often been backed by public interventions aimed at cost discovery and at solving coordination problems.

Concurrent public policy interventions at many different levels and coordinated actions with the private sector have helped both countries maintain advantage in increasingly competitive international markets, by

Box 2

Agro-based industries in Chile — success takes time

Chile's exports of high value agricultural products are concentrated in fish, wine and fresh fruits. Chile is the largest world exporter of fresh grapes and fresh fish fillets. Chile's market shares in other fruits such as berries are still a relatively small, but have consistently increased.

While Chile's efforts from the 1960s-70s in support of its fruit export are well-known and have been abundantly analyzed, the Chilean experience illustrates the fact that successfully achieving diversification of primary exports towards higher value-added products takes time. Putting in place the right "soft" environment for the private sector to become and stay competitive is a trial-and-error process, which necessitates both long-term vision and continuity in government actions.

Government initially played the lead role in the development of the fruit sector. In the late sixties, CORFO, a public development agency, initiated a number of programmes under a strategic action plan for development of the fruit sector (the so-called *Plan Frutícola*). These included public investments in R&D, post-harvest infrastructure, and overseas market research, as well as soft credit lines for investments in infrastructure and working capital, and tax incentives for fruit exporters. The plan also included a strong training component, cooperation agreements with US institutions in order to facilitate local acquisition of state-of-the-art knowledge in fruticulture, and the development of research programmes focused on developing fruit varieties adapted to local conditions.

The *Plan Frutícola* created the necessary mass of human capital that was pivotal in the successful transfer and adaptation of foreign technology, which improved fruit production and post-harvest, and also the infrastructure required for exports of highly perishable products. By substantially reducing both risk and initial investment requirements, it laid the basis for private sector participation. The take-off of fruit exports in the seventies was driven by large companies, which benefited from a duty drawback system for non-traditional exports and the devaluation of the exchange rate.

In the early eighties, emphasis was put on the promotion of exports, through the provision of credit to groups of medium to large producers as well as agricultural extension and technology transfer programmes targeting *groups* of large producers. This stimulated horizontal cooperation, ultimately leading to the creation of important private sector associations which today constitute central elements of the dynamic fruit cluster. One plays a prominent role in the berries niche, monitoring the adoption of good agricultural and manufacturing practices, negotiating better prices for international freights and production inputs, and providing market intelligence to its members.

constantly innovating to increase product differentiation and finding new products that can be marketed cost effectively. Such intervention has been direct (e.g. tax incentives for non-traditional activities) and indirect (e.g. allocation of public funds through competitive bidding).

Areas where public support has been key include: allocation of the "commons" (land and coastal concessions); promoting targeted R&D and technology transfer towards new activities; upgrading of logistics infrastructure; development of institutions for quality control and traceability systems; overseas marketing; building "organizational capital" by supporting the articulation of agricultural producers with global value chains; and providing technical assistance to small and medium sized producers. Once new activities achieve a certain degree of maturity, private sector associations appear as important actors in maintaining leadership in international markets and undertaking activities that either complement or reinforce public intervention, including through overseas promotion, standard-setting and provision of technical assistance along value chains.

Scale matters. A closer look at the suppliers of the European Union's top 25 imports of high value agricultural goods where Africa has at least 1 per cent market share reveals that there is a high source-country concentration for these products. The combined market shares of the two largest exporters typically reach 40 or 50 percent of total imports, going up to more than 70 per cent for some of the products (Figure 2).

This concentration strongly suggests that countries wishing to enter those markets cannot do it unless they devote a significant amount of effort, budget and research to this goal. For example, to this day the Chilean agricultural sector remains a recipient of important public investments in irrigation infrastructure, targeted credit and technical assistance programmes for small farmers, and sanitary and phytosanitary (SPS) programmes. Public expenditures on agriculture as a share of agricultural GDP have shown an upward trend since the beginning of the eighties, in contrast to the overall downward trend in most of the developing world. As late as 1990, Malaysia spent as much on public agricultural R&D as India in relative terms, around one-tenth of its agricultural GDP, when the share of agriculture in total GDP was half that of India. It has recently put in place a range of instruments to support upgrading in the agricultural sector, including generous tax incentives for investments in new activities.

Box 3

Malaysia — reinventing its industrial development strategy

The growth of agro-industry in Malaysia was stimulated by the development of both traditional and non-traditional agriculture. Production and upgrading were encouraged by public specialized agencies, and the fiscal revenue obtained from taxes on the thriving export sector was used to reinvest in targeted R&D. Rapid economic growth ensued, predating the boom in electronics.

There is strong evidence that natural resources had a major role in Malaysian growth. In recognition of its over-reliance since the 1980s on exports of electronics, the Malaysian government has now taken measures to refocus the country's industrial development strategy on agriculture, services and resource-based industries, emphasizing three broad policy objectives:

(i) adoption of modern agricultural methods, including biotechnology, through investments in R&D;

(ii) development of Malaysia as a hub for processing, packaging and marketing of agricultural products;

(iii) development of the aquaculture, deep-sea fishing, ornamental fish breeding and halal produce sub-sectors.

The tax incentive packages being utilized are granted for a limited amount of time and target new investments in "new" activities. This minimizes the risks of perpetuating mistakes and facilitates spillover and demonstration effects.

Only two African countries consistently appear among the two largest suppliers across product categories, Kenya and South Africa. Other African countries are entering these markets, but it remains to be seen whether they will be able to withstand competition from much larger suppliers elsewhere. Additional efforts to differentiate exports may be required to exploit niche markets where competition is not solely based on cost advantages, rather than trying to compete directly with incumbent suppliers benefiting from scale economies and other first-mover advantages.

Creating competitive advantages in the agricultural sector: special challenges for Africa

The extent to which the policies implemented in countries like Chile and Malaysia can be utilized in the African context to build new areas of competitive advantage depends on strengthened domestic capacity to seize trading opportunities and overcome barriers. Many African countries have been unable to take advantage of trade preferences in developed country markets. While on average tariff protection remains

high in developed countries for some agricultural products, much of Africa faces relatively low tariffs as a result of preferential treatment received under the Generalized System of Preferences, the Cotonou (ACP) and Everything But Arms (EBA) schemes in the EU, and the African Growth and Opportunity Act in the US. In the coming years, successful completion of the Doha Round of trade negotiations could significantly change the context in which African countries compete with other developing countries.

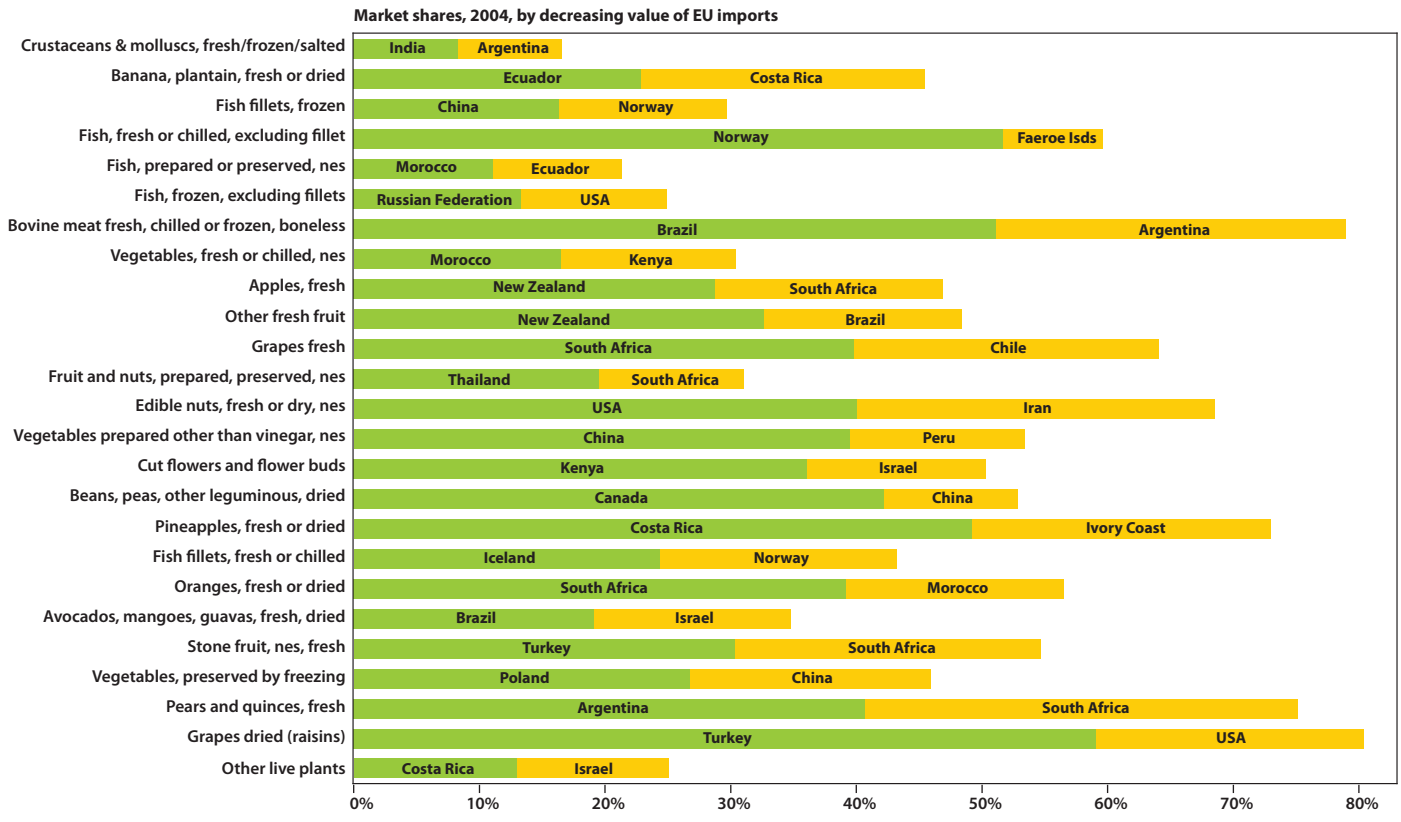
However, non-tariff barriers and other supply-side constraints will likely remain key obstacles for the majority of African countries. These include poorly funded R&D, poor capability to comply with SPS and other standards in developed country markets, poor "organizational capital", and poor logistics infrastructure — to be able to deliver products at the price and in the volumes, quality and timing required by international buyers.

Research and development. R&D is crucial to discovering new products that can be produced cost effectively. In that respect, it is of concern that in the majority of African countries for which information is available agricultural spending relative to agricultural GDP, and expenditures on agricultural R&D in particular, have been declining since the 1980s, in contrast to other regions in the developing world. These trends can be attributed to a shift of bilateral and multilateral donor support, on which most African budgets depend for funding, away from the agricultural sector. In addition, horticultural research has received relatively little attention from the international agricultural research centers until very recently.

Infrastructure. By one estimate, internal handling and transportation of goods takes over 1.5 months on average in Africa, versus 29 days in Latin America and only 13 days in developed countries. Investments in logistics infrastructure for air-freighted perishable

Figure 2

Two largest suppliers of the European Union's top 25 imports of high value agricultural goods for which Africa has at least 1 per cent market share



Source: Author's calculations, based on UN-COMTRADE data. Intra EU trade is excluded.

exports have been key drivers of Kenya's export diversification success, and the country is today by far the largest exporter of cut flowers in Africa (Box 4).

In some instances, African suppliers which had achieved important market shares at a given point in time are now losing this advantage in favour of suppliers with access to better infrastructure and/or which have been able to innovate and increase productivity in order to overcome existing infrastructure or geographical disadvantages. The development of the papaya cultivar in Brazil, which can now be sea-freighted and which has undermined Ghana's cost advantage in air-freighted papayas to Europe, illustrates the latter point.

Box 4

Kenya's success in horticulture

Kenya is by far the largest exporter of fresh vegetables in sub-Saharan Africa and its market share in the EU is second only to Morocco. It also exports different kinds of semi-processed vegetable products and some fruits and juices. In addition, the country is by far the largest exporter of cut flowers in Africa and one of the largest in the world (Figure 2).

Investments in logistics infrastructure for air-freighted perishable exports and in quality and food safety assurance systems have been instrumental to Kenya's export diversification success, helping to attract private sector investment. For instance, the establishment of a well-staffed national plant inspection service (KEPHIS) in 1997 has played a key role. KEPHIS is seeking recognition by the European Commission as a "competent authority", meaning that most inspection responsibilities would be delegated to KEPHIS, thereby facilitating the entry of Kenyan exports into the EU.

Substantial investments in supply control and traceability systems, upgrading of packinghouse facilities (such as improved water and sanitation and advanced cold treatment and storage systems), staff training and health counseling, and environmental testing, have been undertaken by the leading companies in the fresh produce industry, allowing them to service the demand for premium-quality products such as salads and other semi-prepared vegetable products, particularly in the UK. Private investments have been stimulated by a liberal investment regime, fiscal incentives for horticultural exports and political and economic stability.

Standards and codes. According to UNCTAD's estimates, government mandated testing and certification requirements have experienced a seven-fold increase over the last decade and private standards such as those imposed by supermarkets and global distributors increasingly exceed those norms. Investments in quality and food safety assurance systems are key factors behind Uganda and Tanzania's emergence as important suppliers of fish fillets — a "new" high unit value product that happens to be among the most dynamic commodities in world trade.

SPS standards and other technical requirements (e.g. those defining quality, size and ripeness for fruits and vegetables; animal welfare regulations; etc.) also constitute high barriers (Box 5). The capacity to address those barriers at the national level can make the difference between countries competing over the same range of products. For example, Namibia and Botswana are the largest (boneless) beef exporters to the EU. To be able to maintain a presence in the EU market in face of competition from highly competitive countries like Brazil and Argentina, both countries have undertaken substantial public investments in order to meet stringent import requirements, including in livestock identification and trace-back systems and upgraded facilities in slaughterhouses. However, Namibia's market share in the EU has grown faster than Botswana's and unit values have also increased more. The key determinant of Namibia's success has been the ability to persuade importers of the superior quality of its beef, which is largely a result of the Farm Assured Namibian Meat Scheme, managed by the government-owned, privately financed Meat Board of Namibia. Under this scheme, both full traceability and strict veterinary and animal welfare standards conforming to EU requirements are ensured. No other comparable scheme exists in Africa today.

Supply-chain organization. Increasingly, the ability to organize in order to promote exports under a national country brand and to penetrate global supply chains has been a discriminating factor in favour of Asian and Latin American producers. Competitive global suppliers are forming alliances, joint-ventures and other networks with the goal of becoming preferred suppliers for the multinationals that dominate world food trade. Hence, in addition to investments in productivity and quality, suppliers must undertake important investments in terms of organization if they want to penetrate international markets. South African companies are among the few on the continent which have been engaged in such alliances.

Promoting product differentiation (e.g. through promotion of country brands) is a complement to pursuing such a strategy, and has been used effectively by Chile

and South Africa to market fruits in developed country markets. Most African countries however, despite supplying unique and/or high quality fresh foods, have so far been unable to market them accordingly. For example, Nile Perch from Lake Victoria is sold in developed country markets without any reference to its origin and characteristics.

Conclusion

Current domestic capabilities and endowments in the great majority of African countries suggest that a realistic strategy for sustainable industrial development could be based on finding opportunities for upgrading within the primary and natural resource-based sectors. The potential for generating spillovers to other sectors and sustaining growth, as well as for poverty reduction, is probably greater in agriculture than in other sectors. While Africa may not be able to compete in the production of sophisticated manufactures in the near future, it can probably compete in the production of some dynamic agricultural products and processed agricultural goods.

The historical experiences of Chile and Malaysia, but perhaps more importantly, the continuing struggle of these countries to maintain leadership in increasingly competitive international markets, show that government intervention and coordinated actions from the private sector are crucial in that process. In the context of deficit-plagued governments in Africa, a crucial point concerns the costs of such public interventions, which are not trivial.

Support from international donors was an important aspect of the early development of the fruit and salmon sectors in Chile and in other success stories in low income countries as well. South-South cooperation could play a similar role in the future.

Box 5

Implications of Non-Tariff Barriers for Africa: the case of meat

In the EU, imports of products of animal origin must comply with two basic requirements. First, the exporting country must be recognized as free of certain diseases (the same holds in the US). Secondly, imports into the EU must have an original health certificate from an approved establishment. Neither the EU nor the US automatically recognizes the country's (or region's) disease-free status determined by the World Organization for Animal Health.

The EU also has strict requirements for the use of hormones and other substances such as antibiotics, as well as for maximum allowable residues. Exporting countries are required to have monitoring programmes in place and to submit monitoring results to the EU. Laboratories must comply with EU standards. The monitoring programmes can be limited to products for export, but traceability must be ensured. Establishments exporting meat to the EU must also comply with Directive 93/119/EC on animal welfare. As of 2002, according to a survey undertaken by the European Commission, only 5 African countries (Botswana, Cape Verde, Namibia, South Africa and Swaziland) had some sort of animal welfare protection rules or industry guidelines.

As a result of these restrictions, and despite substantial preferences, especially for LDCs, only a handful of African countries are allowed to export some meat products to the EU (Botswana, Namibia, South Africa, Swaziland, Zimbabwe). Despite apparently less stringent requirements, no African country is eligible to export fresh meat products to the US.

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United Nations Department of Economic and Social Affairs
Division for Sustainable Development
Policy Integration and Analysis Branch
2 UN Plaza
New York, NY 10017

Voice: (1-917) 367-3269
Fax: (1-212) 963-1267
E-mail: carpio@un.org
http://www.un.org/esa/sustdev/publications/innovationbriefs/index.htm

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