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Elaborating Quality Standards in West Africa

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Abstract

Setting quality standards (understood in the broad sense covering sanitary, organoleptic, technical quality and signs of quality) can be a decisive element in improving the competitiveness of agrifood commodity chains and development. Standards are often addressed from the standpoint of the access of agrifood products from developing countries to the markets of developed countries. The level of standards is, in this case, usually seen as a non-tariff barrier that can be highly restrictive for export operators. But this is not always the case and depends notably on the support that operators can receive to upgrade. In addition, the stakes of quality standards also concern the agrifood products consumed and traded on national and regional markets in the South.

In West Africa, consumers are increasingly sensitive to the quality of agrifood products, in connection with rising standards of living, urbanisation and the emergence of consumerism. Elaborating regional quality standards can encourage operators to grasp the opportunity offered by this market segmentation to better showcase their products and increase their incomes while meeting consumers' demands. The Quality Programme set up in the WAEMU zone and then extended to ECOWAS has for now primarily aimed at building a regional institutional system and supporting export-oriented operators. For the regional market, the challenge involves both the level of quality standards and process of elaborating them.

The study on the elaboration of quality standards in West Africa was commissioned by the Agence Française de Développement and produced by GRET and the Faculté des Sciences Agronomiques du Bénin. The goal was to use case studies on gari and fish to shed light on the stakes and questions involved in setting regional standards and offer a decision-making tool for people in charge of setting standards in ECOWAS countries and the Quality Programme. Interviews of state services, operators, consumers, and research and development support organisations were conducted in Senegal and Benin and then in the framework of field trips to Ghana and Côte d'Ivoire.

The study is presented in the form of thematic fact sheets organised in two parts. The first general part presents the stakes of quality standards, a summary of commodity chain studies, crosscutting fact sheets on signs of quality and rules of origin, and recommendations for the elaboration of regional standards. The second part, focused on the commodity chains studied, illustrates the questions raised in regard to consumers' demands, operators' practices, and how well standards and practices match each other.

The results show that efforts at setting standards in countries are above all dictated by the need to maintain export outlets in the EU. This prism tends to leave the non-industrial sector on the sidelines although it plays a crucial role in employment, poverty alleviation and African market supply. The challenge in this sector is to move from traditional processes that target organoleptic quality and are relatively suited to short distribution circuits to other practices that enable one to reach more distant markets while ensuring that products are not harmful. Thousands of small non-industrial operators are not able to adopt industrial procedures and international standards at this time. What is more, they are developing diverse practices to improve the quality of their products, better showcase them and thereby grasp the remunerative opportunities offered by the growing market segmentation.

In this context, the intermediate or dynamic standards approach based on social practices and the notion of progressivity in standards seems particularly relevant. Consulting all those involved to define quality criteria and good hygiene practice guidelines is crucial. Establishing financial incentives and support measures (training, equipment for testing laboratories and enforcement services, etc.) must complete the system.

Quality standards for agrifood products are spreading in West Africa. This trend is partially structural. It is related to the growing demand of African consumers, in connection with rising standards of living and urbanisation. It is also imperative because standards are increasingly a decisive element in the agricultural and food trade. Operators must take standards into account to ensure export outlets. Applying quality standards can also be a way for operators to better showcase their products and increase their incomes when they have the capacity to do so.

In West Africa, the regional elaboration of quality standards and the promotion of quality is being accomplished within the Quality Programme, adopted in WAEMU in 2005 and currently being expanded within ECOWAS. The level of standards and their elaboration process must be considered carefully so that standards can act as an incentive to improve operators' competitiveness and increase their incomes while they satisfy consumers' demands.

This paper summarises a study on the elaboration of quality standards in West Africa. It is illustrated by two examples: the fish and gari commodity chains. These products are respectively exported to the European Union (EU) and widely consumed in the region. Interviews of state services, operators, consumers and research and development organisations were conducted in Senegal, Côte d'Ivoire, Benin and Ghana. The goal is to use these case studies to shed light on stakes and questions related to setting standards and offer a tool to help decision-making, in the form of fact sheets, for people in charge of setting standards in ECOWAS countries and within the various bodies of the Quality Programme.

Quality Standards: What Are They?

Quality standards for agrifood products encompass those standards that apply to all aspects of quality: sanitary quality, organoleptic or sensory quality, technical quality (calibre, grading, colour, etc.), nutritional quality, and quality control and management (market preparation, traceability, HACCP methods, labelling, etc.). This vast field leads one to address the promotion of quality, in particular signs of quality (labels, geographical indications).

Standards can concern products, processes and production methods as well as regulations on packaging, marking and labelling. Set by government authorities, they are in most cases destined to be included in laws and regulations. When they are included in these texts, compliance with these standards becomes mandatory. One should note that in the past in Africa, government authorities were able to elaborate texts without basing them on standards that aimed to protect consumers' health and/or facilitate exports, which today sometimes leads to a disconnect between laws and standards. Standardisation agencies also issue standards, whose application is voluntary, usually at the request of operators for the strategic and economic development of their sector of activity or to protect their markets, and at the request of states for reasons of public health and consumer information. Some of these agencies are the Association Sénégalaise de Normalisation (ASN) in Senegal, MALINORM in Mali, and CODINORM in Côte d'Ivoire. More and more often, companies set private standards in the context of their commercial relationships with their suppliers.

In regard to standards made mandatory by law, verifying compliance is a necessity. Their credibility in the eyes of operators and consumers depends on it. But this implies an effective legal and regulatory framework, on-site inspection services, accredited laboratories, quality control systems, and across the board staff and financial means—all of which are often lacking in West Africa. In Senegal, for example, many public standards do not have application decrees. Regulations that impose sanitary quality criteria and/or commercial obligations are not always enforced (and not always enforceable), and laboratories have limited capacities and resources.

In regard to voluntary standards, their verification is by definition not a necessity. Setting up voluntary standards can be an element in a quality improvement support system, notably for small companies who could not continue their production if the standards became mandatory. Furthermore, companies usually publicise their compliance with voluntary standards to their clienteles.

The Challenges for Quality Standards in the Principal West African Food Product Commodity Chains

Quality challenges are presented below around several key questions to take into account when elaborating regional quality standards.

What Do Consumers Expect?

Consumers play a crucial role in the innovations applied by operators and in improving their quality practices. The emergence of consumerism and a demand for quality products can be seen in West Africa. This consumerism still runs up against much resistance: lack of a service complaint culture (due notably to a lack of product information), low purchasing power that makes quality a secondary concern, an often widespread feeling that health concerns are mostly an issue for Europeans, and an empirical perception of quality among operators ("my product sells, therefore it is good quality"). But consumers' demand for quality is a structural trend connected to an urban lifestyle (the growth of self-service shops, restaurants, etc.) and rising standards of living and levels of education (information on sanitary risks).

The demand for quality also comes from new awareness of health risks with media coverage of cases of food poisoning in countries in the region and international health crises. Simultaneously with the growth of consumers' associations, more and more consumers are sensitive to sanitary quality, in particular for meat and dairy products ("food should not make you sick"). Methods of qualifying quality refer to the cleanliness of the seller and surroundings, a trusting relationship with the seller, packaging in bags, etc. Organoleptic quality is also often primordial for traditional products (millet couscous, gari, smoked fish).

Why Elaborate Standards?

Responding to public health stakes is generally the priority for quality standards. Microbiologic risk—which is linked to hygiene in the production of raw materials, product preparation, transportation, market preparation, and sale—is the major food risk. Improving competitiveness through quality is also a crucial stake. In West Africa, the mediocre quality of certain products harms their competitiveness in relation to imports on local and regional markets. In a context of liberalisation, when imported products are sometimes of better quality and price competitiveness is more and more acute, improving the quality of local products can help improve their competitiveness. If quality is not improved, there is a risk that consumers will turn more and more to imported products. Elaborating quality standards can also be a response to trade protection concerns and express themselves as sector entry regulation (authorisations, supervision, operator quotas, etc.).

How Well Do Standards Fit Social Practices?

In West Africa, current standards often do not match laws and application decrees, many of which date from the 1960s and have rarely been revised since then. They generally copy developed countries' standards for the same products or similar products when international standards do not exist (for example, traditional fermented products). Yet, international standards reflect only little the conditions and interests of developing countries as they do not have the means to participate effectively in setting standards. They are based on production and sales conditions (long distribution circuits with lengthy delays between production and consumption) that are very different in numerous African countries. The risk of adopting international standards is that they may not be strictly applied or adapted and would thus lose credibility ("tolerant" application) and bring about arbitrary sanctions. However, supporting the application of international standards can limit this risk. In the agricultural sector, notably horticulture, this support has enabled small farmers to enter export sectors. For agrifood products, setting standards and issuing application decrees has made it possible to protect the domestic market for some industries (the milling industry, tomato paste, etc.) or facilitate industrial exports (fish). One can note, however, that it was not used to stimulate national and regional markets and develop the small enterprise market.

What Are the Standards on the European Market?

European standards are generally seen as high and restrictive, even inapplicable, for numerous operators in developing countries. Sanitary quality standards are included in regulations and make up mandatory standards (traceability, hygiene inspections, maximum residue limits). In parallel to public standards, one can also see a multiplication of codes of practice set up by private European operators (for example, GlobalGap elaborated by European supermarket and superstore chains). The full set of these standards, both mandatory and voluntary (but unavoidable in practice), make up a demanding market access system.

What Economic Impacts Do Standards Have on Operators?

Before setting standards, one must conduct ex ante impact assessments of operators' economic situation. Cost–benefit analyses must allow one to evaluate the advantages in terms of clientele growth or loyalty, and sales prices, as well as the financial and organisational cost of compliance.

Compliance with quality standards allows operators to access new markets (notably export markets) and differentiate their products from their competitors' products and justify higher prices for consumers. Some growing and solvent market segments offer operators opportunities to increase their incomes. The costs associated with compliance primarily raise the issue of the risk of excluding operators, especially the smallest, with consequences on employment and operators' standard of living. A first challenge involves the very possibility of complying with quality standards. For example, traceability in the dairy sector would be very difficult to set up in mini-dairies because the milk produced by numerous small farmers is placed in the same milk cans by collectors. Another challenge involves the amount that compliance would cost, which may be prohibitive or technically impossible without completely altering modes of production for small non-industrial operators.

The development of private standards also tends to favour large operators and industrialists. Downstream operators prefer to sign contracts based on a set of specifications with the largest suppliers or to integrate the commodity chain, which has hefty repercussions on commodity chain organisation: the concentration of importers, supermarkets and distributors is echoed by a concentration of suppliers, to the detriment of the smallest producers and exporters, even though in some cases (horticultural commodity chains) small producers have been able to enter unprocessed product export chains.

The costs of compliance are, however, variable (and not necessarily high) and states and/or donors offer more and more support programmes. There are multiple factors in the variation of this cost: companies' starting situations, the institutional context (quality of infrastructures and services such as roads, energy, access to drinking water, the waste management system, etc.), the quality of administrative structures, the availability of local technical staff, local certification bodies and laboratories, relationships with importers, etc.

What Institutional System for Standard Setting and Quality Promotion Should Be Set Up in West Africa?

Setting regional standards raises the specific difficulties of policy harmonisation, method design, and community organisations, especially when situations are diverse. In recent years, the region has established a legal framework on food quality (notably sanitary quality). The Quality Programme is an important step in this direction, with national standardisation bodies (NSBs) that work well while others are under development or newly created.

WAEMU's Quality Programme

This system was set up with the adoption of a harmonisation schema for accreditation, certification, standardisation and metrology activities in WAEMU (regulation No. 1/2005/CM/UEMOA) and the creation of three structures:

- the Système Ouest Africain d'Accréditation et de Certification (SOAC, the West African accreditation system),
- the Secrétariat Régional de la Normalisation, de la Certification et de la Promotion de la Qualité (NORMCERQ, the regional secretariat for standardisation, certification and quality promotion), and
- the Système Ouest Africain pour la Métrologie (SOAMET, the West African metrology system).The Programme has made significant progress towards the adoption of regional standards: 22 draft standards have been drafted, 9 of which for the agricultural and agrifood sector, and 33 are at the public enquiry stage. Among the results, one can also cite: the adhesion of most WAEMU countries' national standards bodies (NSBs) to the ISO; the equipment of all NSBs with computer equipment and the provision of standards and regulatory documents to them; the training of national executives in setting standards; and the creation of a regional quality award.

The second phase Quality Programme, which aims to extend the Programme to the ECOWAS zone, was launched in November 2007.

At state level, setting standards implies costs in the standards elaboration process and standards enforcement. The prevailing system in West Africa is in fact a state system: the government and its deconcentrated services are responsible for standards application. This requires public investments and long-term support. Yet, states have limited resources: few laboratories equipped to conduct the tests and/or with trained human resources; no sanitary watch systems or observatories that would make it possible to develop a risk management approach.

Faced with the limited means (human, technical and financial resources), the principle of feasibility must guide the elaboration of standards with moderate ambitions. Regional pooling of resources and giving priority to actions that allow economies of scale are also means to lessen constraints. These actions involve, for example, setting up a resource centre to raise operators' awareness and disseminate information (what the local and regional standards are, what they are on export markets, how to comply with standards, what support programmes exist, how to access them, what changes have been made in the Quality Programme, etc.).

Showcasing Quality: What Signs of Quality Can One Establish?

Brands and labels are signs of compliance and recognition of quality, at the heart of a policy to promote quality. Through these signs, operators seeks to "make quality recognisable" to better differentiate themselves and better position themselves on markets. This makes it possible both to guarantee the origin and characteristics of a product to consumers, and give value to producers' quality efforts through better remuneration. Establishing a commercial brand—whether individual or collective—implies creating specific specifications. They stipulate requirements for processing processes, hygiene rules, raw material specifications, market preparation, etc. Taking into account production conditions and consumers' expectations is primordial when elaborating appropriate specifications that make it possible to ensure a degree of stability in product quality.

Showcasing geographic origin when it evokes specific product characteristics, either physical (raw materials, land) or intangible (know-how, reputation), can also provide considerable economic added value. Numerous traditional African products are associated with a geographic origin: gari from Benin or Ghana, palm oil from Guinea, roast-dried fish (kethiakh) from Senegal, Galmy red onion from Niger, etc. The interest of geographical indications is both to showcase products and protect their typical features. However, they require the establishment of a heavy and costly technical and institutional system as well as scientific and technical expertise. Actors must be organised to implement a voluntary qualification process and elaborate specifications with verifiable criteria. The support of local governments and backing of government authorities are also indispensable as states must be able to conduct verifications and impose penalties for fraud.

Rules of Origin: Other Non-Tariff Barriers to the European Market?

While standards are often viewed as obstacles to Northern markets, rules of origin are also decisive non-tariff barriers. The EU's rules of origin are seen as particularly strict. The EU's objective is to protect itself from the risks of re-exportation, especially when the production procedure uses multiple inputs such as for prepared or conserved fish.

As countries in the Africa-Caribbean-Pacific group, West African countries benefit from preferential rules of origin, notably for fishery products. However, simplifying these rules is still a major stake in discussions with the EU and in the current reform. Today, tax-free access to the EU market for canned tuna requires these products to be "entirely obtained" in ACP countries, with provisions that are more favourable to the EU (for example, EU registration of ships given that West African countries do not have a tuna fishing fleet).

Recommendations on International and Regional Standards

International standards demand high levels of quality, which are usually unsuited to the technical and economic capacities of private (notably micro and small enterprises) and public actors in West Africa. Several levers are possible to ensure better suitability.

Increased participation in the work of international standards bodies would make it possible to contribute to the definition of standards and contest them if needed. This implies having sufficient human and financial means. Influencing private standards is an important lever, one that requires operators to be structured in professional organisations and be able to have a say in negotiations with private companies. Capacity building for operators to upgrade their processes is another lever, one for which states and operators can request various forms of support (technical assistance programmes, memoranda of understanding, twinning, North-South public-private partnership agreements, etc.).

In elaborating standards specific to West Africa (in connection with international standards but taking into account the regions specificities), priority should go to products traded on local and regional markets. The stakes are particularly important for typical traditional products for which there are no international standards (gari, smoked fish, millet couscous, fermented nitta grains, etc.). The intermediate of dynamic standards approach seems particularly relevant. It is appropriate to remember that European or American standards were not established overnight. They are the result of progressive “tightening” in connection with increasingly exacting social demand. Training courses, a large amount of support and technical advice, and access to equipment have allowed operators to adapt along with regulations. Large public investments have been made (developments, infrastructures, laboratories, etc.). The establishment of exemptions to already existing standards is part of this approach (for example, the exemption granted to farmers relying on short commodity chains and direct sale to consumers in French and European regulations). This practice makes it possible to differentiate between non-industrial and industrial products taking into account the different level of risk between non-industrial products sold in short commodity chains and industrial products that follow commodity chains lasting several weeks and involving numerous intermediaries.

Intermediary or Dynamic Standards

Setting intermediary or dynamic (or even transitional) standards depends in the first stage on a precise diagnostic of product quality. This implies conducting a large number of microbiological and physico-chemical tests on products and dishes and connecting them to operators’ practices in order establish realistic thresholds that are accessible and ensure the innocuousness of products after cooking. The second stage consists of promoting good hygiene practice guidelines for each sector based on the HACCP method. These guidelines can also be used as the basis on which to elaborate procedure manuals in semi-industrial and industrial companies. These standards can be revised regularly as quality improves to attain the level of international standards.

Visual criteria (lack of mould, colour, etc.) can form the basis of national and regional intermediary standards, while physico-chemical and microbiological criteria are more difficult to establish and make mandatory. In this case, the goal is to foster good hygiene practices and changes that limit sanitary risks.

There are multiple reasons that regional elaboration is interesting: economies of scale, pooling of resources, encouragement of regional integration, regulatory harmonisation, etc. even though the corollary is that states must accept a certain loss of national sovereignty. It is also justified by shared or similar products produced in the same conditions in several countries and the already developed food trade. This harmonisation must not imply levelling down, which would be the result of a mechanical comparison of national standards. In addition to the application of general principles such as mutual recognition, equivalence and transparency, it can be based on the practices operators use to improve quality.

Consulting all those involved (states, operators, consumers' associations, research, laboratories, NGOs) is a key element in setting suitable standards. Consultation is a major tool to acknowledge actors and make them accountable, improve the efficiency of verification systems and move towards an approach that focuses more on prevention then remedy. The support of consumers' associations is also important in the prospect of fostering a regional quality movement.

Financial incentives to encourage operators to adopt quality management methods could be set up. They are currently limited mainly to the organisation of national and regional awards for quality in the framework of quality promotion policies. In practice, these awards almost exclusively address formal sector operators, mainly large operators (service companies and industries), and generally ignore the vast majority of operators in cottage industries or the informal sector. Other measures can be envisaged, such as subsidies or tax exemptions. Support measures (access to training and credit, subsidised expertise services) are also necessary. Upgrading programmes have been launched, such as in Senegal where subsidies and access to financing facilities exist, but their terms and eligibility criteria (pre-financing, turnover) also favour the largest structures.

Illustration in Two Commodity Chains: Gari and Fish

Analysis of the gari and fish commodity chains highlights commonalities. The specificities of each commodity chain are summarised in the boxes below.

The Predominance of Visual Criteria for Non-Industrial Products

On local markets, one can see a wide range of quality for gari and fish (smoked, salt fish, roasted salt fish, etc.). This diversity corresponds to demands for quality based on different criteria and levels. Consumers are most often sensitive to visual and taste criteria, and the method for qualifying products relies on close and interpersonal relationships with sellers. The demand for sanitary quality is expressed in urban areas where access to information on risks is greater, the product offer is more varied, and relationships are more impersonal. When the product is packaged (which is already a quality criterion for consumers) or comes from far away, labelling information on quality (labels giving the use-by date, composition, conservation conditions, for example) becomes necessary. In regard to exports of frozen fish and canned fish (less than smoked fish), quality standards focus above all on the sanitary quality of the products. The demands of European regulations and private standards have forced states and operators to make considerable effort at upgrading.

Specific Constraints Between Non-Industrial and Industrial Commodity Chains

The methods of producing gari and processing fish for the African market are mainly non-industrial and informal. This raises specific constraints when it comes to setting quality standards. Commodity chains are formed of numerous small operators with limited investment capacities to make changes in their production methods. Information on standards and enforcement of mandatory standards is made difficult by the informal nature of activities even though it is not always difficult to identify operators (fish processing activities are concentrated in sites near fishing docks). In export-oriented fishing commodity chains, operators are industrialists with much greater investment capacities who can therefore meet export market demands more easily, especially when they receive support from the state and/or donors.

Different Quality Stakes for Export and on Local Markets

The differences in processing and distribution methods and modes of consumption for fish destined for export compared to locally consumed fish imply different quality stakes. For instance, salt fish presents much lower risks than frozen fresh fish. The latter is distributed over much greater distances and is consumed less quickly, and hence carries the risk of breaks in the cold chain while salting and fermentation limit the risks of microbial growth. Rapid cooking methods and the lack of pre-cooking preparation practices in Europe make it necessary to monitor the microbiological quality of products more closely. In Africa, on the contrary, cooks wash and clean fish several times, sometimes "treat" (lemon, vinegar) fish, and cook it much longer. The differences between commodity chains that focus on local and regional markets and those that focus on export call for the development of separate methods of setting standards. Given the constraints faced by non-industrial producers, it seems difficult to reproduce European or international standards.

Setting standards in the non-industrial sector can rely on artisans' traditional know-how and/or their innovative practices that make it possible to ensure that products are of a certain (sanitary and organoleptic) quality. These practices are not always seen by operators as "quality methods" that they could showcase to consumers, but they in fact respond to quality criteria insomuch as they help diminish risks. The standards could consist of making a given practice systematic and "professional", as could encouraging improvements in practices (notably through technical solutions) to conserve the characteristics of products while ensuring their innocuousness. Other practices that present a danger for consumers' (and sometimes producers') health must, on the other hand, be banned.

Levers for Action to Improve Quality in the Non-Industrial Sector

The efforts to be made must now focus in priority on the non-industrial sector. For the moment, the support offered by states and donors alike focus above all on the export sectors that are obliged to meet standards to avoid losing their markets. In the Quality Programme, the supported products are still primarily those destined for export to the European market.

Improving the quality of processed products implies expanding interventions to the upstream segments of commodity chains (cassava production, fishing). This is true for export products (traceability, regulatory requirements) and for national and regional markets. The technical and financial guidance for operators seems unavoidable when standards imply new technical solutions. When it comes to sanitary quality, it is important to act on the critical stages of production procedures (for example, fermentation for gari) but also on the products' production environment. Public investments are needed to improve production sites, which are usually highly insalubrious.

Support in the form of equipment and infrastructures for bodies in charge of setting standards and quality are as important as capacity building. Difficulties enforcing standards do not necessarily come from a lack of system or human resources to do so, but from a lack of equipment to run the system (computer equipment, testing material, vehicles, laboratories, etc.).

Conclusion

Overall analysis and the study of two commodity chains (gari and fish) show that efforts at setting standards are above all dictated by the need to maintain export outlets in the EU. This prism tends to leave the non-industrial sector on the sidelines although it plays a crucial role in employment, poverty alleviation and African market supply. The challenge in this sector is to move from traditional processes that target organoleptic quality and are relatively suited to short distribution circuits to other practices that enable one to reach more distant markets while ensuring that products are not harmful. Thousands of small non-industrial operators are not able to adopt industrial procedures and international standards at this time. What is more, they are developing diverse practices to improve the quality of their products, better showcase them and thereby grasp the remunerative opportunities offered by the growing market segmentation. The intermediate or dynamic standards approach, based on social practices and the notion of progressivity in standards, seems particularly relevant. Consulting all those involved to define quality criteria and good hygiene practice guidelines is crucial. Establishing financial incentives and support measures (training, equipment for testing laboratories and enforcement services, etc.) must complete the system.

The Gari Commodity Chain

There are numerous types of gari, depending on the variety of tubers used and how it is prepared. Three techniques are frequently used: traditional technology with grating done by hand, traditional technology with mechanised grating, and semi-mechanical technology (vibrating sieve, grinder, gas dryer, etc.). Whatever technology is used, certain stages in the production process are decisive in ensuring sanitary and organoleptic quality. Fermentation is crucial to eliminate toxicity from the gari, and to meet organoleptic quality criteria (nuances in texture, taste and colour depending on the length of fermentation). Proper cooking is important to reduce water content, foster good conservation and prevent mould. Production surroundings, market preparation and transportation are also essential aspects of quality. Gari is generally produced in open-air sites where there are no sanitary installations or running water, and where effluents are not usually collected and peelings are not always removed, which encourages the proliferation of insects and animal pests. Market preparation is done in very unsatisfactory hygiene conditions (no market preparation rooms, bare hands, etc.).
Standards for gari exist in the *Codex Alimentarius* and there are national standards for it in Benin and Ghana. Physico-chemical criteria are found in all standards but harmonisation is required in regard to admissible limits. In practice, compliance with standards varies considerably from one type of gari to another and in function of the criteria examined. For small artisans, quality is understood above all as the quality of the relationship with customers: a quality product is a product that has received no complaints or claims. Food hygiene concerns focus greatly on insalubrious conditions in production sites, not so much to improve the quality of products (seen as good by operators), but more in regard to working conditions. Some semi-industrial units have adopted quality programmes to meet the demands of markets (national supermarkets, foreign African, European and/or American markets).

These types of operators collaborate with researchers to perfect new procedures and quality management tools, notably HACCP. Official gari exporters also demand compliance verification tests.
Consumers generally have few demands in regard to nutritional and sanitary quality. However, the growing segment of wealthy or even middle-class consumers, living mostly in cities, are sensitive to indirect qualification methods (sanitary and nutritional aspects, origin, brand, etc.) as well as direct qualification methods (sensorial aspects).
Operators are developing practices to meet these demands for quality. There is a traditional know-how. One can see forms of traceability (source of the cassava is well known to producers), quality standardisation via the organisational mode (producers always work with the same clients), promotion of geographic origin (gari from the Savalou region in Benin), market preparation in bags, nutritional enrichment or the addition of other products, technological improvements (graters, presses, cookers, etc.), etc. These practices can allow operators to sell their gari better. Bags of gari are sold in supermarkets in Cotonou for 375 to 550 CFA francs per kilo, compared to 150 to 200 CFA francs per kilo for bulk gari. High-end Savalou gari is sold for approximately 550 CFA francs per kilo. The price of gari enriched with sugar, concentrated milk or coconut milk can reach 850 CFA francs per kilo.
Standards for gari that suit the context, and therefore take into account its non-industrial nature, can consist of the standardisation of certain practices that already favour quality. They could, for example, specify norms on the length of fermentation in function of the varieties used and types of gari produced. Operators nevertheless need support. Technical and organisational changes can be very expensive (knowledge, training, equipment, relationships between parties in the commodity chain, etc.). Social costs can also be high. In Côte d'Ivoire, the primary hindrances to the adoption of industrial machines are the financial cost (for performance that is not seen as convincing) and the social costs that would imply firing 300 to 400 day-labourers. In Benin, several women's groups receive technical and financial support from government structures, NGOs and researchers to produce ordinary gari in packages and enriched gari.

The Fish Commodity Chain

Fish is eaten and traded in a wide range of forms depending on the consumption market. On the regional market, it is mainly salt fish, fermented fish, smoked fish and roasted dried fish. Senegal and Mauritania also export frozen fish in the sub-region. The commodity chain for regional consumption is non-industrial, largely informal and dominated by women who operate mostly alone and sometimes in groups. Exports to the European market are mainly frozen fish and canned fish (tuna) from Senegal, Mauritania and Côte d'Ivoire. The export of smoked, roasted and dried fish destined for the "ethnic" niche market (demand from migrants) is tending to grow. This is an industrial commodity chain in which large, formal sector operators are generally involved (they must be certified) except upstream (non-industrial fishing).
The quality challenges for fish are found as early as the unloading stage in the length of time between capture and processing to avoid product degradation. For fish destined for local and regional markets, the specific challenges involve processing sites and techniques. The sites contain numerous vectors of insalubrity: poor equipment, obsolete premises, water, electricity, insect attacks during drying, lack of waste management systems, etc. Some women have recently adopted practices that are dangerous for consumers' health such as the use of DDT to prevent the fish from becoming infested with insects, or plastic bags for roasting when there is not enough wood. When it comes to processing procedures, the final water content of fish is an important criteria to master. It depends on the duration and type of smoking (type of smoker, wood used) or the salting duration and technique. Its organoleptic quality also depends on the type of salting (size of salt crystals, quantity of salt) and drying. For the European market, the quality challenge involves the difficult of complying with European standards during the stages of producing frozen fish (specific temperatures).
A regulatory system and standards for fish have indeed been established in Senegal and Côte d'Ivoire. However, the texts are often very old and replicas of what is done in France or Europe; they do not cover non-industrial products in a detailed and exhaustive way. On the European market, sanitary standards require exporting companies to meet obligations of means (production infrastructures) and results when it comes to products and the verifications conducted by the appropriate authorities (since January 2006, testing laboratories must have internationally-acknowledged certifications).

Verifications are, overall, well executed for export, but they are much less frequent for the non-industrial sector. In fact, operators exporting to the EU comply with European standards (the rate of rejection after testing is limited). On the contrary, non-industrial practices are generally far from existing standards and can pose serious public health problems.
Quality expectations are still little expressed by operators in the non-industrial sector and consumers. Above all, non-industrial processors have demands in regard to site development and access to improved technologies (subsidies, investment loans). Nevertheless, operators are implementing new practices to improve the sanitary quality of their products. Early on in Senegal's industrial sector, the state implemented a standards application policy for industrial fishing companies that is currently being expanded to include non-industrial fishing. In the non-industrial sector, the development of fishing docks (ice production, cold rooms, etc.) as processing sites (water, electricity, sanitation, etc.) can be seen along the coast. Innovations are also being made in processing practices ('parpaing' ovens and 'chorkor' ovens instead of ground roasting).
The quality improvements partially benefit all operators, for example with investments in sites. However, they also generate new costs (dues, transportation from the unloading site to the processing site, storage). Inscribing these changes in standards without providing support measures could cause numerous small operators to be excluded. Most of the owners who have received support to obtain ovens are men who were previously little present and capture a promising market that is getting away from women (notably because of their difficulties obtaining medium-term loans). Some groups are also struggling with the constraint of the solvency of domestic demand and the difficulties involved in starting to export products to expand outlets.
When it comes to upgrading operators in the non-industrial sector, support from states, NGOs and donors is a necessity. In the industrial sector exporting to the EU, companies have received considerable support (for example, the SFP (Strengthening Fishery Products Health Conditions) Programme financed by the EU). Even though difficulties remain with the extension of European regulations to non-industrial fishing, the need to accredit laboratories and the risk of eviction, the support system is well in place and reactive. Financial incentives are also proposed. In Côte d'Ivoire, any tuna sector company exporting at least 80% of its production to the EU can receive exemptions or reductions in duties and taxes (on water, electricity, telephony and oil products). Inversely, the non-industrial processing sector has received little support in Senegal and Côte d'Ivoire.