Trade Capacity-Building Programme for Ghana

Project Results

Phase I
A. Introduction

Ghana is greatly endowed with resources and has the competitive advantage needed to develop a thriving commercial horticultural sector. With a very strong export potential in agricultural products, the country also has excellent climate, rich soil, good port facilities, continuous improvement in infrastructure base and a strategic location near profitable global markets. However, it faces major obstacles due to its limited capacity to conform to international standards.

The UNIDO Project “Trade Capacity Building for Ghana” (US/GHA06/005), set up in March 2007, is funded by the Swiss Confederation through the State Secretariat for Economic Affairs (SECO) and designed as a stand-alone intervention to help Ghana meet this challenge.

The objective of the project is to enhance the export performance of Ghana, by creating conditions for strengthening supply capacities in selected agriculture and industry branches, establishing a credible conformity assessment infrastructure and fostering integration into the multilateral trading system, while at the same time strengthening local consumer protection.

The main counterparts and direct beneficiaries of the project are:

- The Ministry of Trade and Industry, the formal official counterpart (and lead ministry of the Trade Sector Support Programme (TSSP)
- The Ghana Standards Authority (GSA)
- The Ghana Export Promotion Authority (GEPA)
- The Plant Protection and Regulatory Services Directorate (PPRSD)
- The Food and Drugs Board (FDB)

The expected outcome of the project includes the following:

1. To increase the capacity of Ghana Standards Authority (GSA) in standards development; to disseminate, promote and train Ghanaian enterprises on priority public and voluntary standards with high market demand and use the standard-related activities to enhance and further institutionalise consumer protection.
2. Establish a traceability system at the Ghana Export Promotion Authority (GEPA) for export products to promote the application of traceability schemes by producers and exporters.
4. Strengthen testing laboratories to provide reliable and internationally accepted tests for key exports.
5. Upgrade the Plant Protection and Regulatory Services Directorate (PPRSD) to become an EU competent authority in the field of horticulture: developing capacity and competencies to inspect exports.
6. Development of the National Quality Infrastructure.

The purpose of this report is to present the outcome of the Ghana project and the extent to which the project intends to achieve its ultimate goal of supporting Ghana to:

- link export products to international markets
- improve its institutions to ensure that products meet the stringent quality standards expected of exports
- build strategic partnerships
- obtain internationally recognized accreditation
- apply best international practice and improve the responsiveness and efficiency of the horticulture commodity supply chain.
B. The results

Outcome 1

The Ghana Standards Authority (GSA) has increased its capacity in standards development; disseminating, promoting and training Ghanaian enterprises on priority public and voluntary standards with high market demand and using the standard-related activities to enhance and further institutionalise consumer protection

Output 1.1.

Several activities were carried out to assist GSA to establish a modern, service-oriented structure that would both protect local consumers and support enterprises in accessing global markets:

- A SWOT analysis was conducted and GSA’s vision and mission¹ were defined.
- Ten of GSA’s top managers were trained to manage the standards body and the certification process. A restructuring strategy was developed by local consultants, and GSA was restructured following international best practice. A business/sustainability plan was also developed.

Output 1.2.

To strengthen GSA’s standard setting process some activities were carried out to ensure that the nation’s Standard Authority could develop and publish voluntary standards, in line with international practice, for the main export products. Although GSA’s standardization activities have benefited from support in previous years, the development of demand-driven standards has been a challenge. The 30 new demand-driven voluntary standards developed within the programme will enable Ghana to improve the quality of its products and expand its exports in priority areas. The primary activities were:

- Key staff in the GSA standard setting department were given training at the Trade Policy Training Centre in Arusha, Tanzania to help them understand the implications of recent trends and developments in agricultural trade flows; recent global market developments and how these can contribute to economic growth, food security and poverty reduction; the challenges and opportunities associated with technical regulations and standards in international markets; and to help them appreciate the appropriate policy responses to these issues, with a particular focus on agric-food products. They were also given an e-learning course on the International Standards Organization (ISO) and a seminar² on technical barriers to trade (TBT).
- Priority sectors were analyzed while sanitary and phytosanitary mapping was undertaken on the main exports to identify which standards needed to be developed. Technical committees were then set up with a work and budget plan to develop the 30 priority standards.

Output 1.3.

The third planned output was to develop GSA’s capability to disseminate, promote and train Ghanaian enterprises on priority public and voluntary standards with high market demand and using these standard-related activities to enhance and further institutionalise consumer protection. Several small and medium enterprises were selected and assessed to identify what common assistance they needed to obtain ISO 22000 certification. The EU funded UNIDO West Africa Quality Programme (WAQP) cooperated in this. A work plan was then developed for each enterprise to assist in its standards development requirement and a roadmap prepared to assist in the implementation of ISO 22000.

¹ Funded by GOG

² Activities funded by GSA/GOG
Ghana must pay constant attention to food safety if it is to realise its potential to export food products. GSA, with the assistance of national and international experts under this programme, organized a number of training courses and workshops to increase understanding of agriculture practices:

- Training for GSA staff, auditors and consultants, and employees from other organizations on ISO 22000 with 57 participants and on ISO 9001 with 23 participants.
- An ISO national workshop on conformity assessment, conducted by two international experts from International Standards Organisation (ISO), for 101 participants in the laboratory assessment group and 36 participants in the certification and inspection group. 159 participants attended the introductory plenary session on the first day.
- Training and awareness on the GlobalG.A.P benchmarking process for 38 participants from enterprises belonging to the Federation of Associations of Ghanaian Exporters (FAGE) was conducted by an international expert (Colombia) in cooperation with PIP ACP. The aim of this benchmarking process was to develop a national standard with the same quality and safety requirements as GlobalG.A.P.

Impact of outcome 1:

GSA has created new departments for service delivery and re-engineered its organizational structure to provide conformity assessment and standardization services to exporting enterprises.

The Standards Division of GSA understands the implications of recent trends and developments in agriculture and priority export product flows. The division follows international best practice to develop, adopt and publish standards to ensure the quality and safety of priority products. GSA staff is knowledgeable on international standards such as ISO 9000, ISO 22000, Global Gap, Food Safety, ISO 17021, ISO 17025 and are prepared and competent to develop/adopt future standards required.

By promoting the application of standards, it has enabled small and medium enterprises in Ghana to increase and sustain the quality and safety of their products and, eventually, to further diversify both their exports and their target markets. Producers now have the standards and implementation guidelines to interpret the standards to ensure quality and safety of their products.

Enterprises and local institutions responsible for assessment of conformity against international standards have a local standard and interpretation documents to implement and verify compliance against the standard.

The standards developed/adopted during this programme include:

1. specifications for fresh produce (yam, cowpea, Aubergines, Garden eggs)
2. inspection manuals required to assess conformity against specifications codes of practice
3. revision of pre-requisites on food safety.

GSA supports PPRSD to adopt International protocols and phytosanitary principles required for the protection of plants and the application of phytosanitary measures in International trade. Ghana is one of many in the ECOWAS region who has benefited from its National Standards Authority’s strengthened technical capacity. Training programmes have been provided for quality institutions (laboratories and standards bodies) throughout the ECOWAS states under the UNIDO/ West Africa Quality Programme.

Outcome 2

Establish a traceability system at the Ghana Export Promotion Authority (GEPA) for export products to promote the application of traceability schemes by producers and exporters

Output 2.1.

The project undertook the establishment of a national traceability system for priority export products that would promote and provide training in the implementation of the system; prepare sector and product- specific training materials, guidelines and manuals; and support the implementation of traceability schemes in farms and enterprises. Ghana’s National Traceability System will help the country strengthen its food value chain, and ensure the quality, safety and traceability of its food exports.

To achieve this output, the project carried out several investigative activities:

- Identified and assessed the main challenges that traceability regulations posed for the primary export sectors;
- Exporter’s database was established (GEPA);
- Study tour for GEPA staff to the European conference on traceability;
- Brought in international experts from the UK and Egypt to identify gaps in the national traceability strategy, initiatives and current applications at enterprise level and in the current traceability efforts;
• Visited nine enterprises from key supply chains to identify key areas for improvement;
• Identified a suitable traceability system for pilot enterprise applications, in cooperation with the PIP ACP programme. The system chosen uses open source software for easy and low cost implementation at enterprise level.

A national traceability committee was set up with representatives from the private and public sectors, and meetings were held to define the strategy for implementing the national traceability system. GEPA was assessed by an international UNIDO ETRACE expert, and recommendations were made.

Members of the committee visited ETRACE facilities in Cairo to learn the best practices in running a national traceability system, and a road map for a system trial was then developed with the assistance of an international expert. A train-the-trainer course was conducted in Accra on the concept of traceability, and a traceability training manual was developed for priority sectors.

The hardware that was needed to host the traceability system was procured and installed, and an international expert trained a pool of five national consultants to implement traceability open source software. The national consultants then assisted 40 pilot enterprises to implement the system.

**Impact of outcome 2:**

Ghana has an active National Traceability committee; its members are knowledgeable and competent to understand the implication of a traceability system. The national traceability system is in place and functioning successfully at its pilot phase and ready to incorporate more users. It links to GCNet a database administered by Department of Customs that includes all exporters. (identified products). GEPA administers the electronic system of the traceability system and possesses competent staff to modify and adapt to future needs.

Thanks to the programme a local base of consultants and trainers are available and ready to implement traceability systems in exporting units and incorporate them into the national system.

The traceability system allows Ghana exports to be traceable to its production field. The traceability system is a big step towards the identification of the origin food sources and is of prime importance for the protection of consumers, and also an important regulation enforced by the European Union for all its imports, particularly when products are found to be faulty.

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**Outcome 3**

Establish a Ghana Certification Body and prepare it for accreditation for the certification of quality management systems.

**Output 3.1.**

The first step in establishing a Ghana Certification Body was to set up an appropriate organizational structure within GSA. An international expert assessed GSA’s current technical and organizational structure, its current market demand for system certification, identified the scope for system certification and established a work plan for setting up the certification body.

GSA staff went on a study tour to the South African Standards Board, while there they studied how a certification body is organized within a standards body. The GSA certification department was then established as a unit in its current Quality Assurance Division, a Director was appointed and a Certification and Impartiality Committee established. A Quality Management System and structure was then set in place, a list of management system procedures, functional roles and responsibilities, operating procedures, and guidelines developed, and an action plan for the establishment and accreditation of the certification body developed and successfully applied.

Training was provided for leading staff members of the future Certification Body on how to establish a well functioning management system certification service. Three GSA staff also participated in ISO 17021 training provided by an international expert (India).

**Output 3.2.**

A group of internal and external auditors were trained for the selected certification schemes so that the newly created GSA certification department would have the technical and managerial capacity to certify Quality Management Systems. Seventeen lead auditors received recognized certification for ISO 22000 and eight for ISO 9000.

**Impact of outcome 3:**

GSA will serve the region as an accredited West African Certification Body and certify enterprises against ISO 9000 and ISO 22000 which will lead to reduction in the cost of certification, normally conducted by international certification bodies. For enterprises, this will allow GSA to expand its certification capabilities to other voluntary standards for example in the area of sustainability.
Being certified against ISO 9000 or ISO 22000 provides a large number of benefits and advantages:

- ensures the quality and safety of products
- reduces cost of quality
- promotes supply to new clients thus opening new markets (large clients require ISO certification as mandatory for their suppliers)
- audits and rejections and claims of defective or contaminated products by current clients are reduced considerably.

GSA has a pool of local registered auditors for ISO 9000 and ISO 22000 and local consultants ready to assist enterprises implement ISO 9000 and ISO 22000.

The establishment of a Certification Body in Ghana which is accredited for the certification of Quality Management Systems (ISO 9000 and ISO 22000) provides the region with the assurance that the certification processes are in line with international requirements. Such certification services can be provided to private enterprises as well as to government and academic institutions.

**Outcome 4**

**Strengthen testing laboratories to provide reliable and internationally accepted tests for key exports.**

The accreditation of a laboratory demonstrates that it is competent to conduct tests that comply with standards and regulations and that are accurate, reliable and internationally recognized. Customers of these testing labs should be confident that the test results they receive are valid. With these accredited laboratories established, Ghana’s test results will be just as valid as those given by any other accredited laboratory around the world. ISO 17025 is the international standard that testing laboratories are accredited to. It specifies the requirements and competence needed to produce reliable test data for a defined set of tests and measurements.

The first step in preparing the six Ghanaian laboratories for accreditation was to carry out a careful evaluation of their current testing capabilities and needs, and to identify the scope of accreditation needed to provide testing for Ghana’s key exporting sectors.

A critical factor in obtaining accreditation is for a laboratory to have the right environmental conditions for product testing, and carry no risk of external contamination. The buildings and premises were therefore upgraded to internationally acceptable environmental conditions. This meant providing state of the art equipment that would meet test methodology requirements and certified samples to ensure the calibration of measurement systems, the assessment of measurement procedures, and quality control.

Laboratories need to have good technical and/or managerial skills, therefore GSA, FDB and PPRSD laboratories were all given a good grounding in both theory and practice. Training included back-to-back assistance, study tours to world-class laboratories, and advice from international experts on international best practices in laboratory layout, testing procedures, auditing and quality documentation and manuals.

The first stage in the accreditation process is for the laboratories to participate in international proficiency testing schemes which includes inter-laboratory sample exchanges and statistical evaluation of analytical data (results) to demonstrate the performance of testing methods. Successful results from their participation in these schemes show that their testing methods are acceptable with reference to an international standard.

The final step is the on-site evaluation (assessment) of procedures, the working environment and management systems. A rigorous evaluation is conducted by an international accreditation body. After a laboratory has been accredited, these evaluations will need to be carried out periodically to ensure that the laboratory maintains the required levels of quality and certainty.

At the mid-term evaluation of the progress of Ghana’s laboratories, an assessment of the demand for their services was conducted to validate that the accredited tests will provide added value to the supply chain.

**Output 4.1. microbiology laboratory (FDB)**

A number of training activities were organized for the laboratory’s professional staff:

- A two-week study tour to Sri Lanka, with 4 participants – 2 from FDB and 2 from GSA. The tour focused on the microbiological analysis of food and water and the management of quality in the laboratory (e.g. internal audit, procedures, safety and sanitation). On-the-job training was provided on selected analytical methods.
- A seminar on “Meeting the accreditation requirements of ISO 17025:2005 International Standardization for Microbiology Testing Laboratories”, attended by 20 staff from GSA, PPRSD and other institutions, and 5 from FDB;
- An advanced seminar on “Quality Assurance in testing laboratories to be accredited against ISO 17025:2005...”

“Establish an accredited Certification Body for Ghana and the region”
International Standards”, with 28 participants from GSA, PPRSD and other institutions, and 7 from the FDB.

- A training session conducted by international experts, on ISO/IEC 17025:2005 standards for Internal Auditing, and attended by four staff from the FDB.

Impact of outcome 4.1.

The support to the Microbiology laboratory under the Food and Drugs Board allows the laboratory to provide testing services according to international methods; the laboratory has improved its quality system as it has successfully participated in proficiency testing. It now provides quality testing for products that need to demonstrate quality and safety before they reach domestic consumers. The products tested include natural medicines, food and water.

Output 4.2. pesticide residues laboratory (GSA)

Different training sessions were conducted to upgrade the skills of the professional staff, including:

- “Meeting Accreditation Requirements of ISO 17025:2005 International Standardization for Microbiology Testing Laboratories”, a seminar attended by 15 participants from FDB, PPRSD and other institutions, and 10 from GSA;
- “Quality Assurance in testing laboratories to be accredited against ISO 17025:2005 International Standards”, an advanced seminar attended by 15 participants from FDB, PPRSD and other institutions, and 20 from GSA;
- A training session conducted by international experts on ISO/IEC 17025:2005 standards for Internal Auditing, with 9 participants from GSA.

The laboratory obtained an accreditation certificate in October 2009 and is now one of two labs within the project accredited by DACH. The Scope of Accreditation is for Fish/fisheries, Fruits and Beverages and Cereals.

Impact of output 4.2

It is now possible to determine accurately more than 30 pesticides found in fruits and vegetables; the timely detection of pesticide residues and also the maximum permissible residue levels (MRL) in local and exported food. There has been a 40% increase in Tests after Accreditation.

Output 4.3. microbiology laboratory (GSA)

Several training activities were carried out:

- A study tour to Sri Lanka, with 4 participants, 2 each from FDB and GSA. This tour focused on the microbiological analysis of food and water, and the management of quality in the laboratory (e.g. internal audit, procedures, safety and sanitation). On-the-job training was included on selected analytical methods.
- A seminar on “Meeting Accreditation Requirements of ISO 17025:2005 International Standardization for Microbiology Testing Laboratories”, attended by 10 participants from GSA and 15 from FDB, PPRSD and other institutions;
- An advanced seminar on “Quality Assurance in testing laboratories to be accredited against ISO 17025:2005 International Standards”, attended by 20 participants from GSA and 15 from FDB, PPRSD and other institutions;
- On-the-job training, provided during the experts’ visits, on maintenance, sampling preparation, testing methods etc., and practical job training on the generation and assessment of data to establish uncertainty;
- A training session, conducted by international experts, on ISO/IEC 17025:2005 standards for Internal Auditing, attended by nine staff from GSA.

The laboratory was accredited by DACH in October 2009.

Impact of output 4.3.

Ensuring food safety from microbiological contamination, some products tested included food in general, fruits and vegetables, (e.g. oranges, pineapples, mangoes, bananas) water, animal feeding stuff and environmental swaps.

Output 4.4. chemical laboratory (GSA)

Several training sessions were conducted by International experts:

- A seminar on “Meeting Accreditation Requirements of ISO 17025:2005 International Standardization for Microbiology Testing Laboratories”, attended by 15 participants from FDB, PPRSD and other institutions and 10 from GSA;
- An advanced seminar on “Quality Assurance in testing laboratories to be accredited against ISO 17025:2005 International Standards”, attended by 15 participants from FDB, PPRSD and other institutions, and 20 from GSA;
- A training session, conducted by international experts, on ISO/IEC 17025:2005 standards for Internal Auditing, was attended by nine staff from GSA.
The Scope of Accreditation is for Mycotoxin (aflatoxin & ochratoxin), Maize, Cocoa, Sudan dyes and Palm oil.

**Impact of output 4.4.**

The chemical laboratory was upgraded to provide competence and skilled capacity; to conduct test methods on a larger scale and for accuracy in the testing of export products. The chemical laboratory also has capacity to test for aflatoxin and histamine.

**Output 4.5. textile laboratory (GSA)**

- A seminar on quality assurance in textile testing and on the requirements for ISO 17025 accreditation of services, with a specific focus on Ghanaian textile exports, attended by 16 participants.
- A training session, conducted by international experts, on ISO/IEC 17025:2005 standards for internal auditing, attended by nine staff from GSA.

The market requirements for ISO 17025 in the textile lab are not completely obvious, it is therefore recommended for GSA to analyze costs and benefits to sustain accreditation.

**Impact of output 4.5.**

The textile laboratory has capacity to test imports and exports against international standards on:

- colour fastness to rubbing, perspiration, washing;
- tensile strength, determination of Tear Strength
- determination of threads per unit length, etc.

Particularly the laboratory will support testing of Kente cloth together with the standards division of GSA and it is now possible to establishing a standard of quality “quality mark” for such national cloth. With regard to the imports of textile, GSA is ready to monitor the quality of textiles entering the country thus protecting the consumer against counterfeit products.

**Output 4.6. microbiology laboratory/ seed testing laboratory (PPRSD)**

The laboratory’s membership of the International Seed Testing Association (ISTA) began in 2009, and a needs assessment for participation in international proficiency testing schemes was conducted.

Following an evaluation of the laboratory’s human resources, a training programme was set up. This included:

- A seminar on “Meeting Accreditation Requirements of ISO 17025:2005 International Standardization for Microbiology Testing Laboratories”, attended by 16 participants from GSA, FDB and other institutions, and 9 from PPRSD;
- An advanced seminar on “Quality Assurance in testing laboratories to be accredited against ISO 17025:2005 International Standards”, with 27 participants from GSA, FDB and other institutions, and 8 from PPRSD.
- A one-week study tour to Kenya by two PPRSD staff to visit an accredited laboratory;
- A five-week study tour by two PPRSD staff to the accredited Seed Testing Laboratory of the Danish Plant Directorate, including training on seed purity, seed identification and quality assurance.
- A training session conducted by international experts on ISO/IEC 17025:2005 standards for internal auditing, attended by 4 participants from PPRSD.

The Scope of Accreditation is for Seeds, grains and fruits (Sampling, Purity, Moisture, Germination)

**Impact of output 4.6.**

Proficiency testing has been organised at the seed testing laboratory and is awaiting the reports for accreditation. Once accredited the laboratory will be the first of its kind in West Africa ready for accreditation against International Seed Testing Association requirements.

The PPRSD Seed testing laboratory is important not only to protect plants but also to ensure the quality of the seeds used by growers. The seed testing laboratory is now capable to test seeds on Germination and Purity. Producers now have access to testing facilities and services to ensure the use of right seeds, and that those seeds provide yields in terms of quantity and quality. The laboratory will be able to provide services not only to domestic seed users but also in the West African Region.

**Overall impact of outcome 4**

The strengthening of the testing laboratories will mean a lot to Ghanaian exporters and producers:

- An increase in public confidence; accreditation and proficiency testing is a recognized mark of confidence and approval
• More acceptance of exported goods, because using data generated by an accredited laboratory is an internationally accepted testing practice
• Cost reduction, as it reduces or eliminates the need for re-testing in another country
• Delivery time reduction, time lost in association with laboratory problems, including re-testing, re-sampling are minimized.

Outcome 5
Upgrading of Plant Protection and Regulatory Services Directorate (PPRSD) to become the nominated EU Competent Authority in the field of horticulture.

Output 5.1.
Several training programs were conducted:

• An awareness and training seminar on "The institutional set-up of an EU recognized Competent Authority in the field of horticulture: challenges and benefits", attended by 29 participants (all private and public stakeholders were present), 22 participants were from the PPRSD.
• A training program for inspectors on quality, sanitary and phytosanitary (SPS) measures, food safety, including HACCP, and inspection methods, conducted by international horticulture experts. The inspection equipment needed to train the trainers was also provided.
• A study tour and practical training was organized to prepare the PPRSD staff to effectively deliver awareness and training activities on SPS measures. The study tour was to the competent authorities in Kenya and South Africa, and practical training was provided on joint inspections of selected products (mango, pineapple, papaya and banana) in quality, SPS measures and food safety (incl. HACCP and traceability).

Impact of output 5.1.

PPRSD is now competent in:

• HACCP principles, traceability and phytosanitary inspection and are adequately equipped to conduct inspections

Inspectors and extension officers from key export/import points have been trained on inspection process, quality standards interpretation and conformity assessment.

Outcome 6
Review of the National Quality Infrastructure. In response to a request by the Ministry of Trade and Industry, the project reviewed the National Quality Infrastructure.

• The National Quality Infrastructure was fully reviewed, and a quality policy was drafted based on international best practices and on information gained from selected interviews with the ministries and their agencies responsible for technical regulation in Ghana. These included the Ministry of Trade and Industry, the Ministry of Health, the Ministry of Agriculture, the Ministry of Finance and Planning, GSA, PPRSD, FDB, CSIR and the Association of Ghana Industries.
• A two-day workshop was held to revise the draft quality policy, with more than 70 participants from various sectors and institutions (Ministries of Trade and Industry, Finance, Tourism, Health, COCOBOD, Ghana Standards Authority, Food and Drugs Board, Ghana Atomic Energy Commission and Parliament). This was the first quality policy ever drafted in Ghana.

3 National Quality Infrastructure is the totality of the institutional framework (public or private) required to establish and implement standardization, metrology (scientific, industrial and legal), accreditation and conformity assessment services (inspection, testing and product- and system certification) necessary to provide acceptable evidence that products and services meet defined requirements, be it demanded by authorities (technical regulation) or the market place.
C. Conclusion

The UNIDO/TCB Project has since March 2007 improved both technical and human capacity in the conformity assessment institutions. The support from this programme goes a long way to help developing economies like Ghana to penetrate the international markets with certified goods from accredited testing laboratories.

The 2nd Phase of this project began in January 2013 and is expected to end by 2016. The project will extend its efforts towards the private sector to ensure that the upgraded services are utilised effectively to promote sustainable standards.

Selected export products such as fruits and vegetables, cocoa, wood and fish are to be supported after a value chain assessment to identify areas of intervention. An improvement in the quality of these key export value chains will help match the needs, expectations and requirements of purchasers and consumers as well as those of the regulatory authorities in the local and export markets.