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EXPERIENCES AND LESSONS LEARNED

# ESTABLISHMENT OF ATC/ETRACE

as a Centre of Excellence for Traceability  
and Agribusiness Trade Development



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## ACRONYMS AND ABBREVIATIONS USED IN THIS PUBLICATION

|                       |   |
|-----------------------|---|
| ACP                   | African, Caribbean and Pacific Group of States  |
| ATC or ATC/<br>ETRACE | Agriculture and Agro-Industries Technology Centre   |
| CEOSS                 | Coptic Evangelical Organization for Social Services   |
| CIEH                  | Chartered Institute of Environmental Health, UK   |
| CSR                   | Corporate social responsibility   |
| EFSA                  | Egyptian Food Safety Authority  |
| EMAP                  | Upgrading the Medicinal and Aromatic Plants Value Chains – Access to Export Markets Project |
| ETRACE                | Egyptian Traceability Centre for Agro-Industrial Exports                                    |
| EU                    | European Union  |
| FAs                   | Farmers Associations  |
| FAO                   | Food and Agriculture Organization of the United Nations                                     |
| FATC                  | Food and Agro Industries Technology Centre  |
| FTC                   | Food Technology Centre  |
| GAP or G.A.P.         | Good agricultural practices   |
| GEPC                  | Ghana Export Promotion Council  |
| GFSI                  | Global Food Safety Initiative   |
| GHP                   | Good Hygiene Practices  |
| GLOBALG.A.P.          | Global Good Agricultural Practices Organization   |
| GMP                   | Good manufacturing practices  |
| GOEIC                 | General Organization for Export and Import Control, Egypt                                   |
| GTI                   | Green Trade Initiative  |
| HACCP                 | Hazard Analysis and Critical Control Point principles                                       |
| HEIA                  | Horticultural Export Improvement Association, Egypt   |
| IEDS                  | Italian-Egyptian Debt-for-Development Swap Programme  |
| ILO                   | International Labour Organization   |
| IMC                   | Industrial Modernization Centre, Egypt  |
| ITC                   | Industrial Training Council, Egypt  |
| ITPO                  | UNIDO Investment and Technology Promotion Office  |

|           |  |
|-----------|--|
| MACLE     | Market Access and Compliance for Lebanese Exports Project                                    |
| MAP       | Medicinal and Aromatic Plants  |
| MALR      | Ministry of Agriculture and Land Reclamation, Egypt  |
| MENA      | Middle East and North Africa Region  |
| MAG-TRACE | Food safety and traceability in the Maghreb  |
| MAP       | Medicinal and Aromatic Plants  |
| MDGs      | Millennium Development Goals   |
| MDG-F     | MDG Achievement Fund   |
| MIFT      | Ministry of Industry and Foreign Trade, Egypt, formerly Ministry of Trade and Industry (MTI) |
| MSMEs     | Micro, small and medium size enterprises   |
| MSU       | Michigan State University  |
| PHC       | Post-harvest centre  |
| PPP       | Public-private partnership   |
| PTRACE    | Philippine Traceability for Revitalized Agricultural Competitiveness Enhancement Project     |
| REAP      | Responsible Entrepreneurs Achievement Programme  |
| RIEEP     | Rural Income and Economic Enhancement Project  |
| SDC       | Swiss Agency for Development and Cooperation   |
| SECO      | Swiss State Secretariat for Economic Affairs   |
| SMEs      | Small- and Medium Scale Enterprises  |
| SPS       | Sanitary and Phytosanitary Standards   |
| TBT       | Technical Barriers to Trade  |
| TNC       | TESCO Nature's Choice  |
| UMAGRI    | Union of Maghrebian Farmers, Tunisia   |
| UfM       | Union for the Mediterranean  |
| UNDP      | United Nations Development Programme   |
| UNIDO     | United Nations Industrial Development Organization   |
| UN Women  | United Nations Entity for Gender Equality and the Empowerment of Women                       |
| UPECH     | Union of Producers and Exporters of Horticultural Crops, Egypt                               |
| USAID     | United States Agency for International Development   |

**TABLE 1: PROJECTS RELATED TO ATC/ETRACE**

| TITLE   | DURATION                                    | DONOR                         | BUDGET  | COMMENT   |
|---|---|-------------------------------|---|---|
| Traceability of Agro-Industrial Products for the European Market  | 2004-2009                                   | Italy<br>Debt Swap            | EGP 45.7 m<br>(EUR 7.2 m)                                     | Original UNIDO/ ETRACE project  |
| UNIDO Bridging Funds  | 2009  | UNIDO                         | USD 200,000   |   |
| Programme to Increase Availability of High Quality and Safe Food and Reduce Post-harvest Losses in ACP countries: Establishment of ETRACE as an Excellence Centre for Traceability and Agribusiness Trade Development | 2009-2013                                   | Italy                         | EUR 900,000   | “Global Project” sustained and expanded the activities of ATC/ETRACE                |
| Upgrading Fresh Produce Suppliers of MAKRO  | 2010-2012                                   | METRO;<br>Netherlands;<br>IMC | Original budget:<br>EGP 2 m                                   | Implemented by ATC/ETRACE for UNIDO   |
| Pro-poor Horticulture Value Chain in Upper Egypt (SALASEL)  | 2010-2013                                   | MDG Achievement Fund (Spain)  | Total budget:<br>USD 7.5 m;<br>UNIDO components:<br>USD 2.5 m | Joint UNDP/ UNIDO/ ILO/ UN Women Programme. ATC/ETRACE implemented UNIDO components |
| Upgrading the Medicinal and Aromatic Plants Value Chains – Access to Export Markets (EMAP)  | 2011-2015                                   | SECO – (Switzerland)          | USD 3.9 m   | Project management unit in ATC/ETRACE   |
| UNIDO Interregional Project for the Creation of SME Export Consortia  | 2011-2014                                   | Italy                         | Budget for Egypt<br>EUR 180,000                               | ATC/ETRACE cooperates with project and hosts project expert                         |
| Green Trade Initiative  | 2014  | Italy                         | USD 9.5 m   | ATC/ETRACE will host the project and/or implement some project components           |
| Rural Income and Economic Enhancement (RIEEP)   | 2013-2014                                   | African Development Bank      | USD 1,000,000   | ATC/ETRACE will provide technical support component                                 |
| Philippine Traceability for Revitalized Agricultural Competitiveness Enhancement Program (PTRACE)   | Planned start: 2013 4 <sup>th</sup> quarter | Italy                         | USD 750,000   | ATC/ETRACE, together with UNIDO, provided technical assistance to develop PTRACE    |

## EXECUTIVE SUMMARY

This report documents the activities undertaken and the results achieved under the project UE/GLO/09/017, *Programme to increase availability of high quality and safe food and reduce post-harvest losses in ACP countries: Establishment of ETRACE as an Excellence Centre for Traceability and Agribusiness Trade Development*, referred to as “Global Project”, which was funded by the Government of Italy for a total amount of EUR 900,000, and implemented from July 2009 to December 2013.

Through the Global Project, ATC/ETRACE has established itself as a centre of excellence; it has been strengthened as a service provider to the agribusiness sector in Egypt and other countries. It has provided assistance to approximately 450 micro, small -and medium size enterprises (MSMEs) in Egypt, and a further 400 MSMEs in the agro-food value chains of developing countries and economies in transition to upgrade their performance and overcome trade barriers.

It has cooperated with professional associations, academic institutions and multinational corporations in developing and developed countries to promote greater availability of food that meets standards of safety, quality and traceability. ATC/ETRACE can serve as a model for developing similar projects in other countries.

In the framework of South-South and North-South cooperation, ATC/ETRACE provided technical advice and support to food producers, processors, retailers and exporters, as well as governmental and non-governmental bodies in 15 countries in the Mediterranean region, Africa, Asia, Europe and Latin America.

ATC/ETRACE has established its website as a portal that provides easy access to information and tools

in English and Arabic to users in Egypt and other countries, including an e-learning platform, which offers online courses in both languages on topics such as traceability and other agribusiness, trade and compliance-related issues. By May 2013, the portal had more than 200 users in 14 countries.

ATC/ETRACE, working in cooperation with UNIDO, has been successful in mobilizing new projects with a total value of more than US\$ 29 million (see Table 1 for the full list of these projects).

The ATC/ETRACE experience has demonstrated the crucial role of developing local human resources, both in Egypt and in other countries, e.g. in view of strengthening agribusiness sector development. The local capacity built in Egypt is an enduring legacy of the project. The Centre has always been staffed and managed by a carefully selected team of national experts who have been trained on the job. The key to their continued success has been the ability to attract the best qualified and most committed staff.

The external funding through UNIDO projects and the resulting administrative and financial autonomy have made it possible for ATC/ETRACE to operate effectively and efficiently on the national and international levels and to respond rapidly and impartially to changing needs.

The uncertainties resulting from the current conditions in the country have also had a negative impact on the agricultural and agribusiness sectors. In light of the present situation, external financial support has been vitally important in permitting the Centre to function effectively. The continuance of the support is particularly critical now, to enable the Centre to provide urgently needed support to actors in the agro-food value chain.







# CHAPTER 1.

## BACKGROUND AND CONTEXT

## 1.1 Background

The project UE/GLO/09/017, *Programme to increase availability of high quality and safe food and reduce post-harvest losses in ACP countries: Establishment of ETRACE as a Centre of Excellence for Traceability and Agribusiness Trade Development*, (2009-2013), referred to here as the “Global Project”, was designed to continue and expand upon the successful project *Traceability of agro-industrial products for the European market (ETRACE)*, (2004-2009)<sup>1</sup> which was funded by Italy under the Italian-Egyptian Debt for Development Swap. It also followed up on the results of the *Conference on Sharing Innovative Agribusiness Solutions: From Farm to Markets - Providing Knowledge and Finance*, held in November 2008 in Cairo, Egypt, a spin-off of the ETRACE project.

The project further builds on UNIDO’s extensive experience and expertise in clusters and business linkages, and especially on its inter-related functions of business to business linkage promotion; implementation of environmentally responsible business practices; development of public-private partnerships; and formulation and dissemination of project tools and methodologies. For more information on UNIDO’s approach, please see: <http://clustersfordevelopment.org/>.

The UNIDO/ETRACE project established the ETRACE Centre in Cairo in 2004 to provide technical services and financial support to the agro-food value chain in Egypt. The project successfully developed the capability of Egyptian exporters of horticultural products to fulfil the traceability requirements of the European Union so that Egypt could continue to export fresh produce, thus protecting an important source of employment and income. As a direct result, Egyptian exporters became more competitive internationally. It is estimated that the exporting firms are supplied by more than 47,000 growers in all parts of Egypt and that the continued exports permitted over 4.8 million men and women employed in the sector to keep their jobs and sustain their families’ livelihoods.

***The International Conference on Sharing Innovative Agribusiness Solutions – From Farms to Markets*** was organized by UNIDO/ETRACE to promote North-South and South-South cooperation and was attended by more than 400 participants from 65 countries. The purpose of

the Conference was to demonstrate innovations and best practices that had proven successful and encourage their further use and replication in other countries and regions. The first day of the Conference was held on the Sekem Farm outside Cairo and gave participants the opportunity to gain first-hand experience of ways that innovative solutions are being applied in Egypt. The final report of the Conference, which was published in 2009, provided detailed information on the solutions presented at the Conference, as well as on the results and follow-up activities. A more concise version of the report was distributed in November 2009.<sup>2</sup>



*The International Conference on Sharing Innovative Agribusiness Solutions – From Farms to Markets held at the Sekem Farm outside Cairo in November 2008.*

The Government of Egypt recognized the important contributions of the UNIDO/ETRACE programme to the development of the Egyptian agro-industrial sector and decided to institutionalize the Centre to ensure continuous operations on a sustainable basis after the end of the UNIDO project. In 2009 the ETRACE Centre was transformed by ministerial decree to become part of the Egyptian Ministry of Industry and Foreign Trade’s network of National Technology and Innovation Centres as the “Agriculture and Agro-Industries Technology Centre” (ATC), referred to in this report as ATC/ETRACE.<sup>3</sup> The Centre continued to provide services and helped to strengthen linkages along the agro-food value chain, specifically between exporting firms and their suppliers, many of whom were small and medium-scale farmers.

1 <http://www.unido.org/where-we-work/offices/regional-offices/officeegypt/selected-activities/etrace.html>. This web page provides a brief description of the ETRACE Centre.

2 The full conference report is available at: [http://www.unido.org/fileadmin/user\\_media/Services/Industrial\\_Competitiveness/Trade\\_Capacity\\_Building/CairoConference2008/agribusinessreport\\_s.pdf](http://www.unido.org/fileadmin/user_media/Services/Industrial_Competitiveness/Trade_Capacity_Building/CairoConference2008/agribusinessreport_s.pdf). The summary report is available at: [http://www.unido.org/fileadmin/user\\_media/Services/Industrial\\_Competitiveness/Trade\\_Capacity\\_Building/CairoConference2008/summary\\_011209s.pdf](http://www.unido.org/fileadmin/user_media/Services/Industrial_Competitiveness/Trade_Capacity_Building/CairoConference2008/summary_011209s.pdf)

3 Ministerial Decree 826/2009.



## 1.2 Context

The initial challenges faced by Egypt in 2004 included the need to establish traceability to comply with international requirements for agricultural exports, in particular the new EC traceability regulation 178/2002.<sup>4</sup> The increasingly strict regulations meant that Egyptian food producers and exporters were facing greater competition, with the constant risk of losing their market share, income and jobs. The Egyptian agro-food sector continues to face the challenges of international competition both for exports and in domestic markets. The situation of other developing countries and economies in transition is similar.

The majority of enterprises in the agro-food sector in developing countries and economies in transition are micro, small and medium enterprises (MSMEs). These food producers - farmers and processors - are confronted with particular challenges related to "supermarketization" - the increasing dominance of large-format modern retail stores in food sales. While this process opens new market opportunities in domestic and international markets, it also poses considerable difficulties for small producers.

Indeed, the MSMEs' development potential remained untapped, as they operated in isolation, and were locked in uncompetitive production patterns and were unable to approach dynamic business partners

that could bring in new expertise and know how. UNIDO's cluster approach hence seemed very appropriate to boost the development of a competitive private sector and contribute to poverty reduction in Egypt by building sustainable linkages

between small-size enterprises, their larger scale business partners and support institutions.



*MSMEs face the challenges of supplying to supermarkets*

Linkages enhance enterprise competitiveness through the realization of economies of scale; they are also a source of sustainability, as they increase the capacity of the economic actors to collectively react.

The MSMEs are adversely affected by factors such as the loss of small and informal retail outlets, which diminished business opportunities for smaller producers. They face heavy competition to enter the modern sector supply chain. They are often hindered by their inadequate volumes of production and difficulties accessing finance and modern technology. They also have difficulty complying with

<sup>4</sup> See: <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2002:031:0001:0024:EN:PDF>



international standards and market requirements (private standards) for quality, food safety, traceability and sustainability demanded by higher end domestic and export markets.

MSMEs require effective support to reach compliance and to develop reliability, consistent production volumes and quality, product diversity, fast delivery and competitive pricing. To achieve these goals they require technical support in developing business partnerships and networks; and in learning to work together in clusters, networks and export consortia is required and thus fostering competitive and profitable production and marketing of products, as well as increase in capacity to bargain. Enabling MSMEs to meet requirements consistently also improves the quality and safety of products sold to consumers in developed and developing countries.

### 1.3 Current challenges in Egypt

In addition to undergoing a very difficult period of political transition, Egypt is currently confronted with several crises – notably in the fuel, water and food sectors. The demand for water is increasing due to several interlinked factors, such as population growth, agricultural expansion, industrial development and progressing urbanization. Given the ongoing water crisis, the country can no longer afford to waste water through traditional inefficient agricultural practices, such as irrigation by flooding of fields. The major food crisis that Egypt is currently experiencing the result of increasing poverty and is being further exacerbated by the fuel crisis and the impending water crisis.

### 1.4 Promoting South-South cooperation

The main impulse for extending the services of ATC/ETRACE to other developing countries and economies in transition was that the Government of Egypt considered South-South cooperation a priority in the course of responding to the national and international challenges faced. Egypt was represented by an official of the Ministry of Industry and Foreign Trade at the 2013 High-level Conference of Middle Income Countries,<sup>5</sup> where South-South cooperation was highlighted as a major priority. While Egypt, has traditionally been focusing on the Middle East and North Africa (MENA) Region, the country is now progressively addressing African countries south of the Sahara as potential partners for the provision of experience, technical and managerial know-how, as well as technologies that are often more appropriate for the regional context and more affordable than technology imported from Europe.

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5 The High-level Conference of Middle-Income Countries was hosted by the Government of Costa Rica in San Jose, Costa Rica, 12-14 June 2013, and co-organized by UNIDO and the International Institute for Sustainable Development (IISD). The Conference Declaration, adopted in San Jose on 14 June 2013, is available at: [http://www.unido.org/fileadmin/user\\_media\\_upgrade/Media\\_center/2013/FINALSANJOSEDECLARATION140613.pdf](http://www.unido.org/fileadmin/user_media_upgrade/Media_center/2013/FINALSANJOSEDECLARATION140613.pdf)





## CHAPTER 2. PROJECT SUMMARY

## 2.1 The Global Project

The Global Project, UE/GLO/09/017, was conceived to extend the range of services provided by ATC/ETRACE, in Egypt to ACP countries (the African, Caribbean and Pacific Group of States). The Italian Development Cooperation approved the project with a total budget of EUR 600,000 (including support costs) for two years, from July 2009-June 2011. The success of the first phase of the Global Project, in Egypt and the partner countries, led to further requests for services from ATC/ETRACE beneficiaries. A two-year extension was therefore approved, to July 2013, and a final extension to December 2013, which allowed ATC/ETRACE to continue and expand on on-going activities. The project budget was increased to EUR 900,000, including support costs. The project extension was designed to enable ATC/ETRACE to focus on pro-poor agribusiness solutions and in particular on the integration of small and medium size farmers and producers into formal supply chains, both at national and global levels. It enabled ATC/ETRACE to upgrade and expand the e-learning platform and extend its South-South cooperation.

Output 3 was added to establish a business development mechanism and mobilize new projects in Egypt and other countries. During this second phase ATC/ETRACE mobilized new projects and implemented several activities in connection with these projects (see Table 1 for a full list). The Global Project has allowed UNIDO to continue to cooperate closely with ATC/ETRACE and has financed the salaries of the director and some of the staff of the Centre. The administrative and financial autonomy provided by the Global Project has been crucial in enabling the Centre to promote the development of the agro-industrial sector in Egypt and other developing countries and economies in transition effectively.

## 2.2 Summary of achievements

Through the Global Project, ATC/ETRACE has strengthened its capabilities as a service provider to the agribusiness sector in Egypt and other developing countries and economies in transition. Capacity building has been a key focal area of its activities. Within the framework of the Global Project and the other projects it has implemented, ATC/ETRACE has developed advisory services and training programmes to meet the needs of a wide range of actors in the agro-food value chain, including farmers and farmers-associations, post-harvest handling workers and managers, suppliers for retail and wholesale buyers, as well as graduates. The subjects covered by the training programmes include traceability, food safety, sanitary and phytosanitary standards/ technical barriers to trade (SPS/TBT) requirements. E-learning has played an important role in these efforts, and it is thus crucially

important to continue to expand and upgrade the range of courses offered on the e-learning platform. The capacity building, expert services and technical assistance provided by ATC/ETRACE have had a strong impact on producers and processors of agricultural products throughout Egypt, and, through the MDG-F Project (described in section 3.4), especially on MSMEs in Upper Egypt, the poorest part of the country. The impact has been observed in form of:

- increased productivity, profitability and incomes
- increased employment
- increased value added for agricultural products
- reduced post-harvest losses

This has been accomplished through:

- introduction of new techniques and know-how
- introduction of new products for domestic sale or export
- more efficient use of inputs, including water and agro-chemicals

ATC/ETRACE support services have succeeded in improving farming techniques and other aspects of farm management, as well as processing and business development, in particular:

- strengthening of farmers associations and promotion of cooperation among farmers
- improvement of post-harvest processing
- revitalization of post-harvest centres built under earlier projects
- improvement marketing and development of continuous relations with retailers

The external funding through the Global Project and other projects implemented by ATC/ETRACE and the resulting administrative and financial autonomy have made it possible to respond rapidly and impartially to emergency situations. This was demonstrated by the Centre's responses to the threats, such as the infestation of date palms by the palm weevil and tomato crops by *tuta absoluta*.

## 2.3 The Food and Agro-Industries Technology Centre

Following the success of ATC/ETRACE in providing support to the agro-food industry in Egypt, the Egyptian Government decided to merge it with the Food Technology Centre, a technology centre under the Industrial Council for Technology and Innovation. The new Food and Agro Industries Technology Centre (FATC) was therefore established by a ministerial decree in April 2013, bringing together the technology support capabilities to cover the entire agro-food value chain. This is intended to strengthen the Centre's capacity to disseminate knowledge and experience nationally and internationally. The integration of the two centres into one started in June 2013.



## **CHAPTER 3.** **PROJECT ACTIVITIES CARRIED OUT AND RESULTS ACHIEVED**

### 3.1 Project Objective

The Global Project UE/GLO/09/017, *Programme to increase availability of high quality and safe food and reduce post-harvest losses in ACP countries: Establishment of ETRACE as an Excellence Centre for Traceability and Agribusiness Trade Development*, was approved in 2009 with the following objective:

**To assist developing countries in gaining access to information regarding best practices and solutions for agribusiness development and trade, focusing on traceability and quality/safety systems in order to enhance consumer protection, increase access to markets and increase job opportunities.**

### 3.2 Output 1

The project originally had two outputs. Output 1 targeted North-South and South-South cooperation:

**At least five developing countries assisted through the ATC/ETRACE Centre in the development of traceability and food trade compliance systems for increased market access and consumer protection.**

#### South-South cooperation

The success of the UNIDO/ETRACE programme in supporting the development of the agribusiness supply chain in Egypt provided a basis for the Centre to expand its activities and share its experience and expertise with other developing countries and economies in transition within the framework of UNIDO South-South cooperation. The Global Project has enabled ATC/ETRACE to extend this cooperation, in the Mediterranean region and other parts of the world.

The project results exceeded expectations in terms of the number of countries assisted. In addition to information, expertise and support provided to members of the agro-food value chain in all parts of Egypt, ATC/ETRACE provided assistance to partners in the following countries – Algeria, China, Costa Rica, Ecuador, Ghana, Jordan, Lebanon, Moldova, Morocco, Philippines, South Africa, Tanzania, Tunisia and Vietnam. This assistance was provided through study tours, technical missions by ATC/ETRACE staff and consultants, training in various forms – classroom, e-learning on the job and in the field, as well as information in form of publications, videos and online access to databases and documents. The Centre provided support to an estimated 400 MSMEs in the agro-food value chains of these countries.

Through South-South cooperation, ATC/ETRACE not only provides services directly to countries, but also provides support to countries that pursue the replication of the UNIDO/ETRACE model. Its aimed at assisting these countries in the development of traceability systems and also in establishing similar centres of excellence to support agribusiness development on a sustainable basis.

#### Lebanon

ATC/ETRACE cooperated with Lebanon within the framework of the UNIDO project *Increase Access to Export Markets for Lebanese Products and Improvement of its Quality Infrastructure to Increase TBT/SPS Compliance* (MACLE),<sup>6</sup> building the capacity of the Lebanese Ministry of Agriculture in the detection of pesticide residues in food products. Training was provided by an ATC/ETRACE expert to Ministry inspectors to upgrade their knowledge and skills related to the analysis of pesticide residues.

ATC/ETRACE also assisted Lebanon through the UNIDO/MACLE project in designing traceability systems for apples and olive oil. It provided expertise and organized a study tour to Egypt for a Lebanese IT expert, which included meetings with system providers in Egypt and visits to entities implementing advanced traceability systems.

Following this, in 2010, ATC/ETRACE, with the support of an Egyptian developer, customized and successfully implemented an automated traceability system for the apple supply chain in 25 apple orchards. In addition, the project installed a new cold storage facility to sort, grade and pack a new brand of apples. Furthermore, an automated traceability system for the olive sector was customized and implemented.

#### The Mediterranean Region

ATC/ETRACE expanded its activities to provide services and expertise to other countries in the Mediterranean Region. The MAG-Trace Project on Traceability and Food Safety in Maghreb Countries was carried out in cooperation with the Maghrebi Farmers Union (UMAGRI). Project achievements included the preparation of a diagnostic report on traceability and food safety in Maghreb countries

6 Project number US/06/002, funded by the Swiss State Secretariat for Economic Affairs (SECO). See: [http://www.unido.org/fileadmin/user\\_media/About\\_UNIDO/Evaluation/Project\\_reports/USLEB06002-MACLE\\_E-book.PDF](http://www.unido.org/fileadmin/user_media/About_UNIDO/Evaluation/Project_reports/USLEB06002-MACLE_E-book.PDF) for the evaluation report on the MACLE project.





Traceability training at the Ghana Export Promotion Council

including a SWOT analysis and recommendations for each country, as well as a roadmap for collaboration and knowledge transfer. The report, project activities and outcomes were presented in November 2009 at the International Exhibition of Agriculture Agricultural Machinery and Fisheries (SIAMAP) in Tunisia, where project partners further exchanged information and knowledge.

Together with the Egyptian Food Technology Centre (FTC), UMAGRI, and the UNIDO/MACLE project, ATC/ETRACE cooperated in efforts to establish regional cooperation for the geographical identification of agricultural products. The project *Geographical Indication of Origin for Local Development (GOLD)* was developed and a project document was elaborated and submitted to the EU for funding under the European Neighbourhood and Partnership Instrument. The project objective is to create an integrated strategy for marketing local agricultural produce by labelling the geographical origin and using the unique local origin as a basis for increasing value added.

In cooperation with the Egyptian Ministry of Industry and Foreign Trade (MIFT), ATC/ETRACE participated in the International Meeting on “Financing Infrastructure in the Euro-Med Region” to present and promote the ETRACE methodology.

ATC/ETRACE prepared presentations for the Union for the Mediterranean (UfM), which were received with positive feedback, showing strong appreciation for the approach and methodologies of the ETRACE project. ATC/ETRACE also prepared a proposal to the

UfM to support a joint cooperation project between ATC/ETRACE and MAG-TRACE including regional activities for upgrading in the Maghreb counties.

ATC/ETRACE continues to promote traceability programmes in other countries in the region. The activities conducted include a study tour to Egypt for a Tunisian expert with the objective of designing a traceability programme based on the ETRACE experience. The study tour involved several field visits and meetings with stakeholders. ATC/ETRACE also provided technical assistance to the UNIDO Office in Jordan to develop a project concept and draft a project document for *Applying a Monitoring and Traceability System for Vegetables in Jordan*.

Furthermore, ATC/ETRACE presented the UNIDO/ETRACE project experience to the USAID representative in Palestine and discussed opportunities to replicate the ETRACE model in Palestine.

A final study tour to Egypt for participants from Middle Eastern and African countries was envisaged, in cooperation with the UNIDO Investment and Technology Promotion Office (ITPO) in Bahrain and the EMAP Project. Participants were invited from Bahrain, Iraq, Jordan, Lebanon, Sudan, Tunisia, Uganda and Yemen. However, due to some tensions in the region, the study tour needed to be cancelled. It would have included an intensive workshop on ATC/ETRACE and its activities supporting traceability and the implementation of the MDG and EMAP projects. It would also have provided practical experience through field visits to food producers and processors, farmers associations (FAs) operating post-harvest centres (PHCs), and beneficiaries of the EMAP Project.

### Extending the Range of ATC services to Africa, Asia and Latin America

The ATC/ETRACE support to a traceability initiative in the Republic of Ghana, implemented by the Ghana Export Promotion Council (GEPC), began in 2009 with a study tour to Egypt and hands-on training programme for public and private sector stakeholders. This was followed up in May-June 2010, with a two-week mission to Ghana by an ATC/ETRACE technical expert. The mission, which was funded by the GEPC, included an on-site analysis of opportunities for establishing traceability, training of trainers on implementing traceability at enterprise level and the preparation of a work plan for creating a traceability system in the country.

Within the framework of the UNIDO cooperation with the global retailer METRO Group,<sup>7</sup> an ATC/ETRACE mission went to India to launch a pilot supplier development programme. In an intensive training of trainers programme conducted in Bangalore in September 2011, six trainees from the METRO Cash and Carry India Quality Assurance were instructed in the Global Food Safety Initiative (GFSI) Basic Level Safety Requirements.<sup>8</sup> The trainees were assessed before and after the training to measure the change in their knowledge and capacities and are now qualified to conduct GFSI trainings. In addition, four audit visits to METRO suppliers were carried out together with the Indian Quality Assurance team to provide direct training in conducting audits. The project also conducted training for suppliers and local experts on the UNIDO Responsible Entrepreneurs Achievement Programme (REAP)<sup>9</sup>, to help them align their strategies with the local CSR practices and Code of Conduct.

In November 2009, ATC/ETRACE organized a study tour to Egypt on “traceability in agro-industries” for a Chinese delegation from both the public and private sectors. The study tour included presentation of the

UNIDO/ETRACE model, classroom training and field visits to agro-industrial operators, as well as to traceability system providers.

In January 2010, an ATC/ETRACE training consultant participated in a study tour in Vietnam on “fresh produce supplier development”, which was funded by the METRO Group and the Egyptian Industrial Modernization Programme. The consultant learned

about the Vietnamese experience and innovative methods for supplier development applied there.

ATC/ETRACE provided remote technical assistance to the food traceability project in Costa Rica, affiliated to the Georgia Tech Trade Innovation and Productivity Centre. It clarified the level of traceability implemented in the supply chain, identified suitable methods of documentation for each member of the supply chain, and proposed methods for information treatment and the incorporation of importing countries into the documentation process.

ATC/ETRACE provided expert advice to Moldova by organizing two study tours to Egypt for stakeholders in the table grape sector. Their objective was to identify appropriate methods for improving the production and post-harvest handling of table grapes.

Within the framework of assistance for the design and implementation of national traceability programmes, ATC/ETRACE organized a study tour to Egypt in November 2010 with a hands-on training programme for counterparts from the Philippines, Vietnam and South Africa. The objective was to share knowledge, experience and lessons learned on traceability systems, food safety practices, the inclusion of small and medium size growers and producers into formal supply chains and market linkages. The delegates saw examples of how the traceability system had been implemented in Egypt in different parts of the agro-food value chain. The programme also included visits to small farms and packing houses, as well as to

7 The METRO Group is a major international retailer, with which UNIDO has a cooperation agreement to help develop more efficient supply chains and better food supplies in developing countries and economies in transition. The Egyptian subsidiary is MAKRO Cash and Carry. See the UNIDO business partnership fact sheet: [http://www.unido.org/fileadmin/user\\_media/Services/PSD/UNIDO\\_business\\_partnerships/METRO\\_2013.pdf](http://www.unido.org/fileadmin/user_media/Services/PSD/UNIDO_business_partnerships/METRO_2013.pdf). UNIDO and the METRO Group are extending their cooperation and planning to expand to non-food products, as well as to other regions and countries.

8 The Global Food Safety Initiative (GFSI) is an initiative of retailers for the continuous improvement of food safety management systems to ensure the delivery of safe food to consumers around the world. See: <http://www.mygfsi.com/>

9 REAP is a CSR-based management and reporting tool, which was developed by UNIDO to assist SMEs in their efforts to implement CSR-based management approaches and operation methods, thereby aligning economic, social and environmental aspects of business.



*An ATC/ETRACE expert providing on-site training to farmers in Nubaria*

the General Organization for Export and Import Control (GOEIC) and the Perishable Terminal at Cairo Airport. The delegates acquired in-depth knowledge of the theory and application of traceability as implemented in Egypt and insights about the possibilities of implementing traceability in their home countries. The contacts made during the study tour facilitated further cooperation and the exchange of information and ideas.

## North-South cooperation

ATC/ETRACE organized a study tour to the Netherlands for Egyptian counterparts in cooperation with the Desert Development Centre. The study tour included a workshop on post-harvest management and provided the participants with an opportunity for transfer of know-how through hands-on experience of post-harvest operations in packing houses.

ATC/ETRACE cooperates with The Chartered Institute of Environmental Health (CIEH)<sup>10</sup> with the objective of improving and upgrading the food safety management of Egyptian food products. CIEH is a professional body located in the UK that provides information and policy advice to government bodies and public and private sector environmental and public health practitioners. Three ATC/ETRACE consultants completed the CIEH food safety advance level course in Lebanon in June 2012. ATC/ETRACE also translated the CIEH courses into Arabic to facilitate their use in Egypt and other Arabic-speaking countries.

## Capacity building

Building upon the experience of the original UNIDO/ETRACE project, which trained more than 1600 participants, both in classrooms and in the field, capacity building continues to be a central feature of the ATC/ETRACE mission. The training is provided to actors across the entire agro-food value chain, in packing houses and processing facilities and on farms. The topics covered are varied and the level and intensity of training is always adapted to the needs of the specific target group. Some of the topics in which ATC/ETRACE provides training are the following:

- Traceability: concepts and implementation
- Practical implementation of the traceability manuals
- Standards (EU and other international) for fresh produce, quality, food safety and traceability
- Post-harvest handling for quality exports
- Personal hygiene and working conditions
- Food safety concepts, e.g. Hazard Analysis and Critical Control Points (HACCP)

<sup>10</sup> See the CIEH website: <http://www.cieh.org/>

The Global Project has enabled ATC/ETRACE to expand and extend the types of training provided and the countries to which it is provided. An important tool in this regard is the e-learning platform,<sup>11</sup> which has been strengthened and upgraded under the Global Project and which is further described below.

ATC/ETRACE conducted two training programmes in the ISO 9001 and ISO 22000 standards<sup>12</sup> for the Horticulture of Upper Egypt Association and for the Agri-cooperatives Centre in Minya Governorate. 17 participants were trained in the ISO 9001 and ISO 22000 guidelines and the application of the ISO standards in their organizations and for other beneficiaries



A training programme on Fundamentals of Quality and Food Safety was conducted for the Gafaar Association in Beni Suef Governorate. 18 participants learned about the concepts of good manufacturing practices (GMP), good hygiene practices (GHP), HACCP, quality systems, food safety, and how the guidelines can be implemented by their members.

ATC/ETRACE conducted a training programme on post-harvest treatment of onions, garlic and green beans for 16 participants from the Coptic Evangelical Organization for Social Services (CEOSS) in the Qalyubia Governorate.

Together with the Egyptian Food Safety Information Centre, ATC/ETRACE organized a training course for

<sup>11</sup> The ATC Learning System can be accessed at <http://etrace-elearning.com/>

<sup>12</sup> The ISO 9001 standard relates to the criteria for a quality management system, and the ISO 22000 standards address food safety management. see: [http://www.iso.org/iso/iso\\_9000](http://www.iso.org/iso/iso_9000) and <http://www.iso.org/iso/home/standards/management-standards/iso22000.htm>

SMEs and extension officers in Aswan in December 2009 entitled “Introduction to Traceability in Fresh Produce”. The topics covered by the 20 participants included, in addition to introduction to traceability, familiarization with the EC Regulation 178/2002,<sup>13</sup> which establishes traceability requirements for all food or feed products entering the EU, traceability requirements in other standards, the ETRACE traceability manual and traceability implementation.

### Collaboration with Egyptian entities

ATC/ETRACE collaborates closely with the Egyptian Food Safety Unit, which is responsible for the establishment of the Egyptian Food Safety Authority (EFSA). ATC/ETRACE is involved with the unit’s efforts to establish the national food safety framework and will continue to cooperate in the provision of training, expertise and support.

ATC/ETRACE is registered with the Industrial Modernization Centre (IMC) as a Service Provider, which allows the Centre to implement technical cooperation projects that are funded by IMC. ATC/ETRACE is also registered with the Industrial Training Council (ITC) as a training provider for the ITC. A memorandum of understanding was developed with the Egyptian Horticultural Export Improvement Association (HEIA) to foster joint programmes, with special emphasis on the exchange of knowledge and experience.

### Success stories – Examples of ATC/ETRACE supported activities with significant impact

#### Supplier development programme with the Global Food Safety Initiative

Within the framework of UNIDO’s cooperation with the Global Food Safety Initiative (GFSI), ATC/ETRACE implemented a project with GFSI, the METRO Group,<sup>14</sup> (the Egyptian subsidiary is MAKRO Cash and Carry), and Michigan State University (MSU). The objective of the project was to upgrade MSMEs to qualify as suppliers to MAKRO Cash and Carry using the GFSI Global Markets Programme, which is a set of capacity building modules designed to facilitate sourcing from small and medium scale suppliers by enabling them to address conformity issues effectively. This was the first field test of the Global Markets Programme and was expected to provide concrete feedback to validate and improve it.<sup>15</sup>

The involvement of MAKRO was based on its policy of local sourcing and the need for suppliers who can meet its standards. By upgrading their food safety management systems, small and medium size farmers can qualify as suppliers for MAKRO and also facilitate their access to other national and international markets.

The project was carried out in two phases, corresponding to the basic and intermediate level safety requirements. It began in 2009 by training the ATC/ETRACE team of experts on the Global Markets Programme and developing supplier training materials, which were translated into Arabic and localized in line with local legislation and with supporting case studies.



Two groups of potential suppliers were identified and selected for the basic and intermediate levels. Suppliers covered a wide range of sectors, such as fresh fruit and vegetables, baked goods, meat, dairy products etc. Following an initial assessment, the potential suppliers participated in an intensive training programme followed by on-site mentoring, during which ATC/ETRACE provided technical support to help them address the non-conformities identified in the first assessment. The training was followed by a second round of assessment, in which 78% of suppliers passed, compared with only 33%

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was launched in 2011 (manufacturing version) and 2012 (primary production version) to offer small and less-developed businesses a step-by-step approach to implementing food safety requirements from a low knowledge base up to position where full scheme HACCP level certification can be achieved.

See: <http://www.mygfsi.com/structure-and-governance/gfsi-technical-committee/gfsi-global-markets-working-group/programme-overview.html>

13 See: <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2002:031:0001:0024:EN:PDF>

14 See footnote 2.

15 Following this full pilot test, the GFSI Global Markets Programme

in the first round. The second phase of training was conducted in 2010. Again, the suppliers were assessed both before and after the training. While 38% passed the first round, 71% passed the second round and were able to comply with the intermediate level requirements.

The pilot experience in Egypt proved the effectiveness of the Global Markets Programme for improving the capabilities of suppliers to comply with food safety requirements and in responding to the needs of both retailers and manufacturers. It provided practical experience and verifiable data to finalize



the programme, which will allow replication and upscaling of the methodology. The experience showed the importance of coaching and mentoring to ensure improvement. It also showed that localization of training materials and engagement of local experts as trainers are key factors in making the programmes cost-effective and sustainable.

The successful pilot application of the Global Market Programme by ATC/ETRACE was presented at the GFSI Global Food Safety Conference in London in 2011 and triggered interest of other major retailers to work with UNIDO and the ATC/ETRACE centre on supplier development programme in other countries and regions.<sup>16</sup>

<sup>16</sup> The supplier development programme was also presented at the High Level Panel entitled 'Small Farmers, Big Business: Engaging the Private Sector in Sustainable Agricultural Development', at the European Development Days, 17 October 2012, Brussels. The ETRACE experience was also discussed, and ETRACE is one of the projects highlighted as a case study on the website. See: <http://www.smallfarmersbigbusiness.org/>

## Technical support for pomegranate export

Technical assistance and an on-the-job training programme were conducted during the pomegranate season, in September 2009, for two Farmers Associations (FAs) in Upper Egypt – the El Bayahoo FA in Minya and the El Shark FA in Beni Suef. More than 80 packing house employees were trained in best practices for post-harvest handling of pomegranates, as well as principles of food safety and hygiene. The technical assistance program was successful. As a result of the technical support pomegranates exports exceeded 400 tonnes.

## Saving Egypt's tomato crop from *Tuta absoluta*

A major success story was saving the Egyptian tomato crop from the insect pest *Tuta absoluta*, the tomato leaf miner, in the framework of the MDG-F Project. The pest entered Egypt in 2010 and destroyed 95% of the tomato crop in Upper Egypt in 2011. As a consequence, prices increased significantly. The farmers, in response, resorted to daily application of pesticides with disregard to required pre-harvest usage intervals. ATC/ETRACE identified an Egyptian expert who was able to develop an appropriate pest management regime, and the MDG-F Project implemented an eight-month intensive campaign that successfully eliminated the pest in four governorates of Upper Egypt.

## Campaign to eradicate date palm weevils

The results of a survey conducted by an ATC/ETRACE expert showed that as many as 80% of the date palms in Egypt are infested by weevils that can kill the palm trees, thus endangering an important Egyptian crop with great export potential. An Egyptian agronomist developed a technique to exterminate these pests. Using an apparatus that is simple to construct and can be produced locally, a pesticide is injected under pressure into the trunk of the infested trees and travels through the holes bored by the weevils to reach and kill them, without harming the tree or contaminating the fruit with residues. In cooperation with the MDG-F Project, a campaign was carried out in one governorate and successfully eliminated the pest. Similar campaigns are foreseen for other date-growing areas of the country.

## Greenhouses in Upper Egypt (SALASEL)

Working together with the MDG-F Project, ATC/ETRACE promoted the use of greenhouses,



*A greenhouse built in Upper Egypt*

constructed of plastic sheeting, in Upper Egypt.

Greenhouse permit vertical cultivation, i.e. growing plants on poles or wires rather than spread on the ground, which greatly increases the output per unit of land, thus helping to overcome the challenges caused by small land holding sizes. Greenhouse cultivation is more labour-intensive, thus creating employment opportunities. It furthermore creates viable employment in supporting sectors, such as construction and maintenance of the greenhouses, as well as logistics and transport of produce. Greenhouse cultivation allows for off-season production, resulting in higher market prices, as well as a more controlled environment, permitting lower input intensity, such as pesticides and water.

The project was conducted with farmers associations, and constant follow-up and extension services were provided. The outcomes of this pilot intervention included the creation of three sustainable full time employment opportunities per acre in addition to seasonal labour opportunities, which resulted in double or triple the production per unit area of land, depending on the crop. The produce is of higher quality and therefore can fetch a higher market price.

Furthermore, the production window can be expanded from three months to six months for most vegetable crops. In addition, the technology allows farmers to decrease the use of water by 75%, thus reducing irrigation costs by 50% compared to open field cultivation moreover reducing fertilizer use by almost 30%. It is calculated that for a product such as green beans, the higher productivity and quality and

lower production costs can produce returns that are as much as 15 times greater than they would be using traditional methods.

### 3.3 Output 2

The second project output was:

**At least 300 operators in food value chains from developing countries using the ETRACE E-learning and agribusiness trade solutions platform to identify, assess and implement innovative agribusiness solutions.**

#### Making information available

The collection, assessment, storage and dissemination of information play a central role in the activities of ATC/ETRACE. This is carried out using multiple types of media, including those that can be accessed through the ATC/ETRACE website – e-learning courses and materials, videos, documents, databases, an expert system – as well as publications and information material available in printed form.

By May 2013 the web site had more than 200 users from 14 countries, including members of the agro-food value chain; growers, farmers associations, food packers and processors, wholesalers, retailers and exporters, as well as other stakeholders including staff of government agencies and members of civil society.

#### Creating an e-learning platform in Arabic and English

The ATC/ETRACE e-learning platform, which provides internet-based learning in English and Arabic, represents a major feature in the range of capacity-building services provided by the Centre.<sup>17</sup> It has also been upgraded and extended under the Global Project.

The e-learning platform is a prime example of the creation of synergies with other projects. Through this platform hundreds of members of the agro-food value chain have been trained under the Global Project and other projects implemented by ATC/ETRACE. The technical material developed under the various projects on topics such as food safety, post-harvest processing, pest management, farm management, etc. was amended and uploaded to the e-learning platform. By making this material easily available to

<sup>17</sup> The ATC E-learning platform can be accessed free of charge at <http://etrace-elearning.com/>

users anywhere in the world, the e-learning platform helps to strengthen the role of ATC/ETRACE in promoting access to know-how, best practices and solutions throughout the agro-food value chain.

The decision to develop an e-learning capability was based on the results of a feasibility study that concluded that e-learning would be an appropriate means for the centre to address the needs of its clients effectively. The courses taught in the original UNIDO/ETRACE project were instructor-based; which limited the number of participants and the frequency with which the courses could be held.

An in-depth assessment of the e-learning structure, technology and content integration, as well as the course content and design was carried out and completed in December 2010. The overall evaluation was positive, particularly regarding the technology, business plan and implementation. It was concluded that e-learning continues suitable tool for ETRACE to address its customers' needs effectively and recommended the expansion of the training programme, based on the current strategy. The report

included a targeted and comprehensive action plan to optimize the e-learning platform.

The ATC/ETRACE e-learning platform has been re-designed to make it more interactive and user-friendly for both trainees and trainers. It runs on the Moodle Learning Management System, which is a free open-source software platform. It was upgraded in early 2013 to the latest stable version of Moodle (release 2.4) and has additional features including mobile and tablet versions with different interfaces.

A "rapid e-learning tool" has been added to the platform, which includes the manuals, videos and other information materials that have been developed by ATC/ETRACE in the framework of the various projects implemented since the beginning of ETRACE in 2004. It thus provides easy access to a comprehensive set of documentation on traceability and other agribusiness, trade and compliance related issues.

The ATC/ETRACE e-learning platform is also used for capacity building under the EMAP Project, called



*Virtual learning in the Philippines conducted by ATC/ETRACE in Cairo*

the “MAP Academy,” and under the MDG-F Project. Training programmes are conducted under both projects for agronomists and agricultural engineers to supplement what they learned at university and provide them with more practical knowledge. By upgrading their qualifications and teaching them the skills that are required by the market, the young graduates become more eligible for employment. By May 2013 more than 750 graduates had been trained. Training was also provided using the e-learning platform to 30 postgraduate trainees from the Egyptian Academy for Science, Technology and Maritime.

### “Blended” distance learning for the Philippines

In preparation for the Philippine Traceability for Revitalized Agricultural Competitiveness Enhancement (PTRACE) project, ATC/ETRACE provided training for a total of 55 participants from the Philippines Department of Agriculture and the Department of Trade and Industry. The training was an example of blended learning, using the ATC/ETRACE e-learning platform together with direct online interaction with an instructor in a “virtual classroom.” The training included intensive workshops with three groups of five students each over a five-day period and 40 students in the virtual classroom for three days. The modules covered traceability and product recall and considered topics, such as food laws and regulations, supply chain structure, information flow, transportation and transparency.

### ATC/ETRACE publications

Information is disseminated to actors throughout the agro-food value chain not only through the e-learning platform, but also through printed material. The publications described below have been produced in cooperation with the on-going projects that ATC/ETRACE is implementing. This cooperation uses the ATC/ETRACE experience in producing publications that are well suited to the needs of different groups of supply chain actors, such as farmers, MSMEs, etc.

### Producing sun-dried tomatoes - an illustrated manual for farmers

Experts from ATC/ETRACE and the MDG-F Project jointly worked together on the production of printed training material in Arabic with supporting

photographic of the field activities to suit the local context. This training material is reusable in Arabic speaking countries.

One example is the illustrated manual on the production of sun-dried tomatoes, which apparently the first manual on this subject in Arabic. The manual covers all aspects of production, from selecting the varieties best-suited to solar drying, to the most appropriate drying techniques to final packing for shipment. It describes the proper procedures for selecting, cutting and salting the tomatoes. The manual also shows the advantages of drying on wire mesh tables, rather than on the ground, as it has been done traditionally, and illustrates how to build the tables economically. The manual has been a valuable tool for introducing this new product to Egyptian farmers – a product with high value added, and one for which Egypt possesses a strong comparative advantage due to the long growing season and ideal climate for solar drying.



*Drying tomatoes on wire mesh tables*

### An illustrated guide to basic principles of G.A.P.

Another publication produced in cooperation between ATC/ETRACE and the MDG-F Project is a brief illustrated guide of good agricultural practices (G.A.P.) that can be used for training farmers and farm workers with limited or no literacy skills. In addition to the text in Arabic, the self-explanatory illustrations



serve as a reminder of what has been taught. The guide shows proper techniques compared to wrong practices on topics such as irrigation, cultivation, harvesting, integrated pest management, application of fertilizer and pesticides, respecting the pre-harvest intervals (PHIs), record-keeping, etc. The guide has been used effectively with Egyptian farmers and can also be used in other Arabic-speaking countries.

## Expert system for crop disease diagnosis

The expert system for plant disease diagnosis is an online agricultural extension tool for farmers created by ATC/ETRACE. Working together with the MDG-F Project, ATC/ETRACE experts developed the expert system in Arabic targeting farmers in Egypt and other countries in the region. The pilot phase covered four crops: barley, onions, pomegranates and tomatoes.

The system provides a tool that is simple to use and enables farmers to diagnose diseases or pest infestation themselves. The system included scope for expansion to include other crop diagnosis and to provide recommendations for appropriate treatment.

The expert system was developed jointly with the Egyptian Ministry of Communication, as part of a network of community knowledge portals that includes a portal for agriculture. The network is based mainly on user inputs and the portal is hosted by the Ministry of Communication, ensuring sustainability and availability to a wide range of users.

## Global Information System (GIS)

Another collaborative product of ATC/ETRACE and the MDG-F Project is a global information system (GIS). The GIS is an innovative application that is used in project management to store information on project beneficiaries. The data includes the longitude and latitude coordinates of the fields of all the participating farmers, as well as details about crops that can be used for traceability and other purposes. By linking the application to Google maps, project staff and other stakeholders can pinpoint the locations of all the fields of project participants, and thus visualize aspects related to agro-chemical application, traceability, as well as facilitate the identification of opportunities for further cooperation.



Example of information retrieval using the Global Information System

## Videos for the agro-food value chain

ATC/ETRACE also produced training and information videos. In cooperation with the MDG-F Project, ATC/ETRACE produced three videos showcasing success stories of the MDG-F Project and demonstrating the value of ATC/ETRACE support. One video demonstrates the advantages of vertical agriculture in greenhouses; the second one shows improved pomegranate production techniques and the third one presented methods for loss reduction in tomato production. These videos, which are accessible through the ATC/ETRACE website, are also available directly on YouTube, under “Salaselnewsworld”.<sup>18</sup>

## Videos for Farmers

ATC/ETRACE is the implementing partner in Egypt for the project *Videos for Farmers*, was funded by the Swiss Agency for Development and Cooperation (SDC). The project began in January 2013 with the aim of strengthening the capacities of and linkages between multiple stakeholders to improve the effectiveness of producing, disseminating and using agricultural training videos to improve farmers’ livelihoods.

*Videos for Farmers* is being implemented in six African countries – Benin, Egypt, Kenya, Malawi, Mali and

18 The three videos mentioned and others in Arabic and English are available at: <http://www.youtube.com/user/Salaselnewsworld/videos>.

Uganda -- by Access Agriculture, an international NGO that facilitates the production, translation, dissemination and use of agricultural training videos in developing countries.<sup>19</sup> The online library of videos will be of pronounced value to rural advisory service providers, who otherwise must spend considerable time to find or develop suitable training materials for their staff to train the farmers with whom they work. Access Agriculture will thus become a key vehicle to strengthen advisory services for farmers in Africa and elsewhere.

ATC/ETRACE involvement in the project included participation in a video production workshop, held at Egerton University in Nairobi. ATC/ETRACE, which already has experience in producing videos, will continue to produce videos and will introduce the



Access Agriculture video library to farmers, farmers associations and other agribusiness stakeholders in Egypt to assist them in accessing the website and the wide range of videos available.

### Communication and global forum activities

The support of the Global Project has made it possible for ATC/ETRACE to contribute actively to many communication and global forum activities, such as:

- ATC/ETRACE conducted a traceability workshop at the Middle Eastern Food Exhibition SIAL Middle East 2010. Through the workshop, ATC/ETRACE

presented the UNIDO/ETRACE model, showing how it developed a wider scope, focused on the supply chain, fostered South-South cooperation activities and established new contacts with major retailers, food processors and hotel operators in the Gulf Region.

- ATC/ETRACE presented the UNIDO/ETRACE experience at the International Workshop on Public-Private Partnerships (PPP) in support of sanitary and phytosanitary (SPS) capacity, held in The Hague, 4-6 October 2010. The workshop resulted in significant new contacts and potential future partnerships.
- ATC/ETRACE made a presentation on best practices and the practical implementation of traceability systems based on a case study of the onion value chain at the 12<sup>th</sup> International Conference of Agronomy in North Sinai.
- ATC/ETRACE presented the experience of the UNIDO/ETRACE model at the Bright Animal Workshop on Precision Livestock Farming in Johannesburg, South Africa in September 2010. The ATC/ETRACE Director, whose participation in the workshop was funded by the EU Bright Animal project, contributed to the discussions on precision livestock farming standards, best practices, traceability, and information requirements for various categories of livestock.
- ATC/ETRACE participated in the Summit 2010, GLOBALGAP's Tenth Anniversary Conference in London, sharing the ETRACE experience with the conference participants from more than 40 countries and learning about the latest developments in Good Agricultural Practices and version 4 of the GLOBALGAP Integrated Farm Assurance Standard.
- At the plenary session of the GFSI Global Food Safety Conference in Orlando, in 2012, UNIDO presented its sustainable supplier development programme, highlighting the partnership with the Global Food Safety Initiative to build capacity for safer food supplies with ATC/ETRACE in Egypt, as well as in India and Russia.

19 Access Agriculture has received backing from the Global Forum for Rural Advisory Services, which is a body promoting extension activity for the public, private and NGO sectors. See the Access Agriculture website [www.accessagriculture.org](http://www.accessagriculture.org).



*Sieving calendula blossoms in Faiyum*

### 3.4 Output 3

The third output, which was added to the project when it was extended in 2011 was:

**ETRACE/ATC business development mechanism in place and at least three new projects successfully mobilized.**

#### **Pro-Poor Horticulture Value Chains in Upper Egypt (SALASEL)**

ATC/ETRACE, in cooperation with UNIDO, was very successful in mobilizing new projects. It played a key role in designing and developing the project *Pro-Poor Horticulture Value Chains in Upper Egypt (SALASEL)*, which was financed by the Spanish Millennium Development Goals Achievement Fund (MDG-F) with a total budget of US\$ 7.5 million.

The project was jointly implemented by UNIDO, the United Nations Development Programme (UNDP), UN Women and the International Labour Organization (ILO). The project, referred to here as the MDG-F Project, started in January 2010 and was scheduled to end in December 2012, but was extended to June 2013.<sup>20</sup>

The MDG-F Project continued the support to the agro-food value chain started under the UNIDO/ETRACE project; however, it focused more on poor farmers and on integrating MSMEs into the formal sector. ATC/ETRACE implemented the UNIDO components of the project, which accounted for US\$ 2.5 million of the budget, and worked together closely with the other agencies to coordinate all project activities. The accumulated experience of the ATC/ETRACE experts proved very valuable in planning and carrying out the project activities. In order to overcome the constraints identified, the project worked together with farmers associations (FAs) and their members in three locations in Upper Egypt, continuing the cooperation with those FAs with which ETRACE had worked earlier.

Other aspects addressed by the project included the promotion of gender equity for women working in agriculture and food processing, entrepreneurship development, marketing, and enabling small-scale growers and producers to comply with food safety, quality and traceability requirements.

An important outcome was the upgrading of existing post-harvest centres (PHCs) to improve their operation and facilitate partnerships between small farmers and private investors (exporters, domestic retailers, touristic facilities, etc.) to purchase their produce at fair prices. To achieve this, the project provided extension services and professional management for the PHCs and trained the members of the FAs in PHC management. The FAs appreciated the revitalization of the PHCs, which had not been operational due to insufficient training in managing them.

ATC/ETRACE developed a crop-based strategy that proved effective in working with farmers and followed a market oriented approach in providing extension services. This meant that the efforts to introduce advanced best practices to enhance efficiency and productivity were directly linked to the efforts for effective marketing of the small farmers' produce, with a view to promoting group farming and introducing contract farming. When farmers realized that they

20 A description of the project is available at: <http://www.mdgfund.org/content/propoorhorticulturevaluechainsupperegypt>.



*Technical assistance provided to potential MAKRO suppliers under the Supplier Development Project*

could increase their profits by responding to market requirements and understood the profitability of farming contracts with major processors and wholesale traders, they became more receptive to new ideas and were more willing to apply new techniques.

### **Upgrading the Medicinal and Aromatic Plants Value Chains - Access to Export Markets (EMAP)**

ATC/ETRACE was also directly involved with the development of the project *Upgrading the Medicinal and Aromatic Plants Value Chains - Access to Export Markets* or “EMAP”, which is financed by the Swiss State Secretariat for Economic Affairs (SECO) with a budget of US\$ 3.9 million, in addition to in-kind contributions of the Government of Egypt. The project started in 2011 and is scheduled to continue to 2015.<sup>21</sup> Its goal is to upgrade the value chain for medicinal and aromatic plants (MAP), emphasizing value addition and product diversification.

Similar to the MDG-F Project, the EMAP Project targets small and medium scale farmers and aims at improving their participation in the MAP value chain.

<sup>21</sup> Detailed information is available at the project website: <http://www.emap-eg.org/>

The project management unit is located in the ATC/ETRACE offices and works closely together with ATC/ETRACE staff.

Egypt has been producing and exporting MAP products for many years; however, the value chain of the Egyptian MAP sector is seriously underdeveloped. Problems include poor production methods, low quality and safety standards and lack of adequate advisory services. These factors negatively affect the position of Egyptian MAP products in export markets and lead to a high number of rejections due to nonconformity with Sanitary and Phytosanitary Standards/ Technical Barriers to Trade (SPS/TBT) requirements. The majority of medicinal and aromatic plants are cultivated by small growers. Land ownership is highly fragmented, and the average farm size is less than one feddan (approximately 4200 square metres). Many of the growers are organized in farmers associations, or are informally linked to them.

These farmers supply the raw material to pre-processors and local traders. Small growers are squeezed between the high costs of production and land rent and the depressed prices for their crops. Typically these farmers implement poor agricultural and field drying practices, resulting in poor product quality and contamination. Despite these constraints, the current value of MAP exports is US\$ 100 million,

representing about 10% of Egypt's total processed food exports, and the MAP sector, which is very labour intensive, employs more than 140,000 workers.

The project follows an integrated development approach and addresses constraints throughout the value chain, tackling problems connected with production, harvest, post-harvest, processing and export in order to improve productivity, quality and compliance with international requirements.

The first two years of project activities have brought initial success in raising the position and competitiveness of Egyptian MAP products in export markets and developing the internal supply chain. One of the crucial achievements of ATC/ETRACE in relation to the EMAP Project was the successful lobbying and strategic support resulting in the issuance by the Ministry of Industry and Foreign Trade of the Ministerial Decree 205/2013. The Ministerial Decree established a National Quality Scheme Steering Committee for the MAP sector, which is an essential step in creating the quality scheme.

### Upgrading Fresh Produce Suppliers

The project *Upgrading Fresh Produce Suppliers*, funded with an initial budget of EGP 2 million by the Government of the Netherlands, the METRO Group

(MAKRO Cash and Carry in Egypt)<sup>22</sup> and the Egyptian Industrial Modernization Programme, was designed to upgrade small and medium size farmers, enabling them to meet the quality standards them to meet the quality standards of MAKRO and thus qualify as suppliers. The project was started in March 2010 with a needs assessment that targeted 560 farmers in three governorates in Upper Egypt.

The needs assessment revealed that some of the challenges faced by small scale farmers include marketing, production, choice of varieties, irrigation, fertilization, and compliance with quality and food safety standards. The average farm size among the sample was 2 – 3 feddans (8400 – 12,600 square meters). Programmes of training and technical assistance were designed and implemented in Nubaria, the Qalyubia area (34 small farmers) and in Beni Suef (50 small farmers) in 2011-2012. Traceability systems were implemented in Nubaria and Qalyubia. The areas covered by the technical assistance programme included: production, irrigation, fertilization, integrated pest management (IPM) programmes and compliance with quality and food safety standards, as well as other areas of farm management. The success of the project was seen in the fact that in April 2011, 34 farmers (4 groups) signed contracts with MAKRO to supply fruits and vegetables.

22 See footnote 2.



In the next project phase ATC/ETRACE assisted 360 potential MAKRO suppliers, all small and medium size growers in the areas of Qalyubia and Nubaria, to help them improve productivity and compliance with international traceability and food safety standards and regulations.

### Interregional Project to Promote SME Origin and Export Consortia

ATC/ETRACE also cooperates with the UNIDO *Interregional Project to Promote SME Origin and Export Consortia*, (2011-2014, funded by Italy with a budget of EUR 180,000 for Egypt), and hosts the expert working for the Interregional Project in its offices. Egypt is one of the four countries where the Interregional Project is providing technical assistance and building capacity, to promote the creation of consortia among MSMEs to be able to export local products more profitably.

Following an introductory workshop held by the Interregional Project in Egypt, ATC/ETRACE developed and submitted a proposal to promote the export of dates grown in the Siwa Oasis by small scale farmers. The high quality dates from Siwa have good potential as an export product, but until now the small producers have not been able to export them. The project provides the farmers with training in export procedures, assists them in learning to cooperate with each other to form a consortium and supports participation in trade fairs.

A second product for which the Interregional Project is helping producers to establish a consortium is roumy cheese, an Egyptian specialty, which is exported mainly to Gulf countries, particularly Kuwait. The Food Technology Centre, now merged with ATC, provides market information and other statistics to the producers. The project is also helping them to develop promotional tools and participate in a regional trade fair. A third product area is medicinal and aromatic plants (MAP). The Interregional Project is working together with the EMAP Project to help small companies in Beni Suef that produce dried herbs and spices in bulk. Currently the producers sell most of their products to intermediaries. They are examining the possibilities of exporting their products directly and even processing them further and packaging them in tea bags for export.



*Sorting and drying dates for the market*

### Green Trade Initiative (GTI)

The Green Trade Initiative (GTI) is meant to scale up previous interventions in the agribusiness sector implemented by the Government of Italy (donor of this project in the amount of US\$9.5 million) and by UNIDO, namely the “Green Corridor Pilot Project” and the “E-Trace: Traceability of Agro-Industrial Products for the European Market Project”.

The main outcomes of the project is to improve national food quality and compliance with safety standards, improve transportation efficiency and integrated logistics, increase investment throughout the value chain by mobilizing existing resources, and improve market access. ATC/ETRACE is hosting this project or at least some project components, and provides technical support, sharing its knowledge and experience as well as lessons learned.

### Rural Income and Economic Enhancement (RIEEP)

ATC/ETRACE will be responsible for providing technical assistance for the new project *Rural Income and Economic Enhancement* (RIEEP), which is expected to be funded by the African Development Bank with a budget of USD 1.9



million and will begin implementation in 2013. The planned duration is 12 months. The project will focus on four governorates in Upper Egypt -- Minya, Assiut, Suhag and Beni Suef -- and will implement value chain development activities for the horticulture and dairy subsectors.

### **Establishing traceability programmes in other countries**

The governments of Ecuador, the Philippines and South Africa formally requested UNIDO assistance in the design and implementation of national traceability programmes. These programmes are modelled after the UNIDO/ETRACE project, and ATC/ETRACE contributed significantly to the design and planning of the new traceability/agribusiness centres. The ultimate objective will be to establish a network of regional traceability centres/hubs, similar to ATC, which can act both at the national and regional/subregional levels. They will promote the development of pro-poor food supply chains with impact on food security, food safety and quality and the inclusion of small producers in formal supply chains.

The South African traceability programme was developed following the ETRACE model. The national initiative "Proudly South African" received support from UNIDO and ATC/ETRACE. Partners for information and knowledge exchange include the Department of Trade and Industry, the International Consortium of Future Energies and Sekem (Egypt). The UNIDO Regional Office in South Africa also provided support to this initiative.

Working together with UNIDO, ATC/ETRACE provided technical assistance to stakeholders in the Philippines, including the Department of Agriculture and the Department of Trade and Industry, as well as representatives of exporters of specific products, such as the banana cluster group, to develop a project to establish a national traceability initiative that would follow the ETRACE model. The Philippine Rice Research Institute and the UNIDO Office in Manila were also involved in developing the project.

The *Philippine Traceability for Revitalized Agricultural Competitiveness Enhancement (PTRACE)* programme aims to enhance the competitiveness of Philippine



agricultural and fishery products, namely banana, pineapple, coconut, mango and tuna, and strengthen the revenue generation of these products through traceability regimes and compliance with international standards and regulations for product quality and consumer health protection.

ATC/ETRACE support to the project began with a study tour to Egypt in 2011. This was followed in December 2012 by virtual training of 55 people in the Philippines. ATC/ETRACE helped the Philippine authorities design a logical framework and project document. The project submitted to the Italian Development Cooperation to be funded under the Philippines-Italy Debt for Development Swap Program with a budget of USD 750,000 and is scheduled to start in 2014.

### Upgrading the date palm sector

Another new project that ATC/ETRACE has been involved in developing is on upgrading the date palm sector. The project, which follows a value chain approach, aims at improving Egypt's competitiveness in the world market for dates, as Egyptian dates represent a largely untapped potential resource for export. It is planned to submit the project to the Canadian Government for possible funding.







**CHAPTER 4.**  
**PROJECT IMPACT AND**  
**LESSONS LEARNED**

## 4.1 Project impact

The Global Project, UE/GLO/09/017, funded by the Italian Development Cooperation, has shown the positive impact on the agro-food value chain that can be achieved by following and expanding upon the approach developed in the UNIDO/ETRACE model. The project has enabled ATC/ETRACE to grow stronger and become a national and international centre of excellence, increasing the range of services the Centre provides and extending its coverage in Egypt and in the world.

ATC/ETRACE has consistently followed the vision and strategy for supporting the Egyptian agro-food value chain developed under the original UNIDO/ETRACE project, enabling Egyptian food producers, processors and exporters to comply with international standards of food safety, quality and traceability and thus making Egyptian fresh and processed food products more competitive in domestic and international markets. Furthermore, the Centre also provides this support to other developing countries and economies in transition.

Nationally, the Global Project has enabled ATC/ETRACE to continue playing an important role in upgrading agribusiness and agro-industries in Egypt, focusing more on poor farmers and MSMEs than the original UNIDO/ETRACE project did. Internationally, the Centre has extended its South-South and North-South cooperation to a growing number of countries and has established Egypt as a regional hub for upgrading small and medium scale producers in the agro-food value chain.

## 4.2 Lessons learned

ATC/ETRACE can be seen as a model for other countries. It has demonstrated the far-reaching value to the country of the services provided to actors all along the agro-food value chain by a centre of excellence, following an approach that can be replicated, both on a national and on a regional level.

The experience of the Centre has shown the vital importance of human resource development. Capacity building has been a key focal area of ATC/ETRACE activities, both in Egypt and in other countries, and the local capacity built in Egypt will remain as a long-lasting result of the project.

UNIDO has always hired carefully selected national experts to manage the Centre and also

employed the Egyptian experts in providing technical assistance to other countries. The ATC/ETRACE experts are characterized not only by their knowledge and experience, but also by their dedication, commitment and objectivity. Attracting and retaining the best qualified staff and providing them with continuing opportunities to upgrade and utilize their capabilities are key factors in the success of the UNIDO/ETRACE model.

The advantages of using national experts are manifold: selecting experts who are familiar with local conditions and speak the local language is usually more cost effective than hiring international experts. Most important, it usually means that the expertise that is developed will remain within the country after the project ends.

The value of e-learning as an integral part of the overall capacity building efforts has been confirmed and thus the crucial importance of continuing to expand and upgrade the range of courses offered on the e-learning platform.

The ATC/ETRACE experience has demonstrated the value of a centre that has both in-house expertise and can recruit additional experts in a timely manner if needed. The external funding and the resulting administrative and financial autonomy have made it possible for ATC/ETRACE to provide advice, technical assistance, capacity building and other services to a wide range of clients, both nationally and internationally, and carry out these activities in an unbureaucratic manner. In particular, it has enabled the Centre to contribute substantially to the design and development of donor-funded projects and implement them effectively and efficiently.

The experience of the Centre in implementing these projects has shown the value of centralized coordination with the various counterparts – government ministries, agencies and other bodies, NGOs, private sector actors, etc. Relations with these bodies are handled by the ATC/ETRACE Director, thus ensuring a coordinated approach to the different projects implemented by UNIDO and maintaining the institutional memory of the experience acquired under the projects, which is essential for ensuring the sustainability of project activities.

If ATC/ETRACE did not exist, each of the projects would have to have its own office and establish individual communications with the Government authorities, leading to wasteful duplication of efforts and possible inconsistencies or conflicts.



### 4.3 The way forward

Egypt continues to face challenges related to food security and food safety. The growing population makes the task of increasing food production more urgent. Meeting the challenges related to post-harvest losses plays a crucial role in increasing the amount of food available. The growing need to fight poverty in Egypt, particularly in rural areas reinforces the need to create employment and raise incomes.

In view of this, ATC/ETRACE has expanded the range of services it provides to actors throughout the value chain. Major areas of focus will continue to be developing the capacity of MSMEs and farms to function as suppliers to retailers and wholesalers in the formal sector and enabling MSMEs to fulfil quality and safety standards, traceability and other requirements and work towards certification, among others.

ATC/ETRACE has started establishing field service centres under the EMAP Project. These centres enable

ATC/ETRACE to utilize resources more efficiently, use its expertise and capacities more effectively, avoid duplication of efforts, establish reference points for beneficiaries and eventually develop branding for these agribusiness service centres and the services they provide.

The Minister of Industry and Foreign Trade has proposed that the Industrial Council for Technology and Innovation and its network of twelve technology centres should become an independent entity under the MIFT. Becoming a separate entity represents an important development, as this will give the Council financial and administrative autonomy and will streamline considerably the procedures for implementing externally financed projects.

In light of the great strides the Centre has made in developing expertise and the ability to provide much-needed services to the agro-food value chain, it is essential that it continues to be supported both technically and financially. This will help to ensure that the progress achieved to date can be sustained and that the Centre can continue its work effectively.





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