



**tracetracker**<sup>®</sup>

Case study

# Tracing coffee from the bush to the cup

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## ***Tanzania Coffee Board***

**The Tanzania Coffee Board** was established in 1993 by the Tanzanian Parliament to regulate and monitor the activities of the domestic coffee industry. It serves to supervise, advise, coordinate and represent players along the entire coffee supply chain from the farmer to the buyer. It also licenses all coffee business operators and conducts coffee auctions on a bi monthly basis.

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### **Boosting the coffee sector**

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The Tanzanian coffee industry plays an important role in the local economy, and the country's government has been working for over a decade to improve and encourage growth in this important sector. As a leader in this movement, the Tanzanian Coffee Board is breaking ground with a modernized information system to ensure effective product tracking from the farm to the customer.

Tanzania is a small but significant producer of arabica and robusta coffee. It exports over 46,500 tons annually, and represents 0.8% of global coffee production. Due to the coffee's ideal acidity levels and full flavour, it has been chosen for some of the best blends in Japan, Europe and North America. Within Tanzania, the coffee industry provides income for over 7% of the population including 40,000 families spread over the countryside.

Despite the sector's economic importance, it has faced a number of challenges both at home and abroad in maintaining its market share. Between 1976 and 1985, coffee production declined steadily and new competitors entered the coffee market, threatening Tanzania's position. At the same time, the sector depended on a paper-based

information system which exacerbated grading disputes.

In 1993, the Tanzania government established the Tanzania Coffee Board (TCB) to oversee the coffee industry. Over the years a number of key improvements were implemented regarding quality control, however information management remained a hurdle.

Since all of the production and trading records were stored in paper files, it was difficult for the board to update and share key documents. Moreover, the board lacked a channel for identifying and communicating with all the disparate coffee producers. Even though quality and yields were a primary concern, it was difficult to track farms over time and collaborate effectively with them.

Therefore the TCB made the strategic decision to work with a service provider called TraceSoft to implement an electronic information management system and traceability system. And, as a backbone infrastructure, the TraceTracker Global Traceability Network (GTNet) was chosen. The main goals were **to ensure quality, improve communication between industry players, and provide assurance for customers through transparent product documentation.**

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## From paper to electronic traceability, challenges and solutions along the way

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Bringing experience from the Ugandan coffee industry, TraceSoft was able to work efficiently, setting up the new information system in Tanzania as a pilot project funded by UNIDO (United Nations Industrial Development Organization). It was expected that the initial pilot quickly would demonstrate the feasibility of an electronic system, which could then extend to the entire sector.

"The system is intended to improve business performance by allowing access to trade and export documentation online thereby enhancing the overall efficiency of the coffee industry," explained Rosemary Amondi, the managing director of TraceSoft. "The system will also include SMS communications back to farmers on yield, improved farming interventions and providing accountability of payments due. In addition, it will capture information on all stakeholders including millers, cooperatives and farming locations," she said.

As a first step, TraceSoft conducted a thorough analysis of the TCB's existing paper-based system for tracking products. They carefully examined how effective the system was, the type of information that was collected and the needs of the players along the production chain.

"Luckily, the TCB already had a type of traceability system in place. So we were able to model the new system after it, and build improvements on top of what was already there," explained Rosemary Amondi, Managing Director of TraceSoft.

After the initial solution was proposed and approved, work began implementing tracking systems at various curing stations. However, before implementing the GTNet, a basic information management infrastructure would be needed.

The GTNet is an online, network platform that aggregates product information from every stage of the production and processing to create a complete product history for each unique package or trade item. Using the GTNet simply requires that suppliers have a means to uniquely identify trade units and electronically capture data in a form that can be convert to XML.

Normally, players along a supply chain automatically upload product data files to the system in an XML format on a regular basis. These data files often include records of shipments, deliveries, process steps, quality data or documentation relating to individual trade units identified by unique codes such as bar codes, lot numbers or RFID codes. Then the GTNet matches the data from each identified raw material or trade unit to the final product that it is associated with, creating a full picture of the product history from the farm to the retail shelf.

As a result, supply chain partners can use an online interface to look up any trade unit and access dynamic charts of the complete product history. In addition, they can download customized reports and quality documentations or use the system to enact recalls and monitor production.

For the milling stations and curing sites in Tanzania, TraceSoft developed simple Access-based spreadsheets that could be to



enter data and upload information to the GTNet. However, to use the spreadsheets the stations would need additional support in the form of hardware and software. Many of the sites lacked computers and basic internet connectivity. Even among those who used computers, the connections were highly unstable. And, back at the TCB, additional needs were identified. Besides a product tracking system, a basic information system for transactions was lacking.

Accordingly, the initial scope of the project was expanded to include a comprehensive information management system to interface with the GTNet, and the procurement of hardware and software for the curing sites. With consent, approval and support from UNIDO and the TCB, the project moved forward.

One last challenge remained, the adoption at the production sites. While TraceSoft had the full support from the top management at the TCB, the workers at the curing and milling stations had become used to the paper based system. TraceSoft worked tirelessly with the TCB to communicate the benefits of a new automated system and to train personnel as needed. IT staff from the TCB were also trained to manage the GTNet backend and manage any system maintenance and updates.

After a testing period, the system was ready to launch in April of 2009. Both the ministry of agriculture and the TCB director accepted the final pilot results and issued a mandate that it should be implemented across the sector by all the industry players from the small farmers to the exporters.

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## Immediate benefits

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At the end of the pilot phase the immediate benefits were clear. First and foremost replacing the paper-based system with an electronic one increased both the accuracy and speed of transactions. If a dispatch note is needed, the new system automatically creates the appropriate form and fills in standard, repeated content. Automatic calculations of weight and mass relieve the administrative task from making human errors.

As far as traceability information is concerned, the GTNet provides a common reference point for quality data, reducing conflicts and disputes.

"This system will help us analyze yield and quality statistics by growing region so we can make improvements; allow Tanzania to engage in new marketing efforts differentiating its organic and specialty coffees; reduce costs in paper based transactions; and help us manage recalls incase of contamination anywhere along the value chain," said the Adolph Kumburu, the TCB Director General.

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## Looking ahead to complete roll out

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Now that the pilot stage is complete, the TCB is looking ahead to the full rollout, which the TCB will fund and support directly. Key to the success of the full implementation will be partnerships and alliances. The wider implementation will require a sustainable



solution and TraceSoft intends to work with a communication company to install the appropriate hardware and software the 28 curing houses.

The complete rollout will also involve a few new elements including the management of export documentation and direct communication with all the industry players.

"In the past exporters travelled to the TCB to obtain needed export documents, but now they can easily download documentation from the web. And, for the first time the TCB will have a way to contact all of the growers, producers and processors, " said Amondi. "After the completion of an upcoming questionnaire and survey, each farmer will be given a unique identification number. Then the TCB can begin tracking quality and yield information on a farm by farm basis."

In addition, the final solution will open marketing opportunities for the Tanzanian coffee industry. The goal is the use the newly available quality and traceability information to promote Tanzanian coffee around the world. In this way the TCB will be able to help exporters differentiate their products, selling speciality coffees based on addition

production information. Appearances at industry trade shows are in the plans with demonstrations of the hardware and software.

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## Coffee traceability for all of East Africa

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The pilot has shown that the Tanzanian system can also benefit other coffee growing countries in the region. UNIDO, SoftTrace and the TCB will be collaborating to host a series of regional workshops to present their findings to a wider audience.

"The vision is that the Tanzanian case can serve as an example of best practice, improving the efficiency of other coffee supply chains, standardizing and customizing the GTNet for their own purposes, " said Amondi. "The key technology can bring forward and promote the strengths of other countries. "

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