

# TOWARDS AN ENABLING ENVIRONMENT FOR PAPERLESS TRADE

## Electronic Traceability of Aquaculture Products: the Case of TraceVerified in Viet Nam



Agricultural trade is an important pillar for sustainable growth in Asia, with increased demand for fresh products in Western markets creating new export opportunities. However, trade of perishable products remains a challenge. Many developing countries have fallen behind in implementing the high food safety and traceability requirements demanded by high-income export markets, but some have achieved inspiring success. One stellar initiative is Viet Nam's experience in implementing TraceVerified, an electronic traceability, training and consultancy services

project for fisheries and other agro-product value chains targeted at local Small and Medium-Sized Enterprise (SME) exporters. Launched in 2011 as the country's first paperless traceability system, it has raised the confidence of local SMEs and their trade partners abroad by enabling product tracking throughout the supply chain. This brief describes how TraceVerified has emerged to address the peculiar challenges of the aquaculture sector in Viet Nam, and aims to share relevant insights into implementing an electronic traceability system for policymakers in other countries.

## The fishery sector in Viet Nam

According to the Viet Nam Association of Seafood Exporters and Producers (VASEP), in 2009 the seafood production of Viet Nam reached 4.87 million MT. By 2014, the production increased by nearly 40% and this industry now employs more than 4.5 million people in the country. Vietnamese seafood products are currently exported to 170 markets and the fishery sector accounts for about 4-5% of the Gross Domestic Product (GDP) and for about 9-10% of national export revenues. Today, Viet Nam is among the top five global fisheries producers and exporters. The largest share of exports – 75% of Vietnam’s seafood sales – is sold to the US, Japan, EU, China and South Korea<sup>1</sup>.

### ***1. Traceability: why should Vietnamese fish exporters care about traceability?***

In the agricultural trade policy framework, traceability is part of public and private procedures for monitoring the conformity to quality, environmental and other specifications related to food. Through food traceability systems supply chain actors and regulatory authorities can track a food safety or quality issue and introduce procedures to remedy it. The advantages for consumers, governments and large businesses linked to traceability are well recognized. Yet for small-scale farmers, especially those producing fishery and other fresh food products in developing countries, traceability requirements can constitute barriers to trade.

Viet Nam is one of the largest global exporters of agriculture and fishery commodities in the world. Many Vietnamese agricultural and fishery products are highly competitive: cashew and pepper export have a very high value and are appreciated for their quality; rice and coffee are the second most exported product; seafood is the 5<sup>th</sup> and tea is the 7<sup>th</sup>. In the seafood sector shrimp and catfish are two products that have the highest proportion of total seafood exports from Viet Nam.

Traceability<sup>2</sup> of products and ingredients is a clear legal requirement to access an increasing number of markets in developed countries. As stated by Nguyen Thi Hong Minh, prior Vietnamese Deputy Minister of Fisheries, besides being a legitimate right of local consumers, markets and certifying bodies, traceability is also a requirement for almost all imports. Traceability systems make information about products publicly available at all stages of production and distribution; enable concerned stakeholders to track the movement of a product along the food chain; ensure the continuity of a

product’s information flow; and ensure that producers maintain high quality standards and provide verifiable record-keeping and documentation.

Three of the major markets for Vietnamese exports—namely the US, the EU and Japan—have issued a number of regulations on traceability. For example, the European Commission’s regulation 178/2002/EC requires the establishment of a trace verification system at each production stage. Information produced must be recorded and goods have to be labeled correctly to provide data on point of origin tracing. The Anti-Bioterrorism Legislation issued by the US in 2004, states that exporters must send an origin tracing report to the corresponding authority four hours before shipments reach the port. To stay competitive, fresh produce growers and exporters in general need to adhere to these requirements concerning food systems, offering traceable products which are demonstrably free of contaminations or below maximum residue levels (MRLs).

The Government of Viet Nam has taken steps to improve, harmonize and modernize traceability through the implementation of the Food Safety Modernization Act (FSMA), Circular 03/2011/TT-BNNPTNT (providing guidelines for tracing the origin of seafood products and revoking substandard seafood products) and Circular 74/2011/TT-BNNPTNT (providing guidelines for tracing the origin of foods and farm produce and dealing with substandard foods and farm produce).

There are now 612 fish processing plants that meet national standards of hygiene and have applied Hazard Analysis & Critical Control Points (HACCP), and 461 EU-qualified (EU code) plants with factories that have applied Good Manufacturing Practice (GMP) and Sanitation Standard Operating Procedures (SSOP) (VASP, 2015). Nevertheless, given there is no requirement for mandatory electronic traceability by the Vietnamese Government, traceability remains a manual process, as data is still mostly recorded in books. Evidence shows that the majority of food producers only maintain minimal tracing documents

<sup>1</sup> <http://seafood.vasep.com.vn/660/whybuy/export-potentials.htm>

<sup>2</sup> Defined as the ability to “trace the history, application or location of an entity by means of recorded identifications” (ISO8402) or “to follow the movement of a food through specified stage(s) of production, processing and distribution” (*Codex Alimentarius*).

to show they have a tracing system. No company producing food for the Vietnamese domestic market has a suitable traceability system in place.

Traceability is especially important if faults are identified and food products must be recalled. Recent EU legislation obliges producers to disclose to authorities and consumers potential risks to consumers deriving from their products. Likewise, other countries are raising the standards of their own legislation on this matter. At the same time, individual growers, producers and manufacturers eager to protect their brands from the harm of tainted materials or poorly managed recalls, are tightening their own internal recall policies and methodologies.

Major buyers of Vietnamese food products put in place regulations requiring traceability information for the shipment of imported products. Many independent organizations like the European GAP (EUREPGAP), the

US Good Agricultural Practices (US-GAP) and the Accreditation Service Council (ASC) also require traceability, either in paper or electronic format, while Best Aquaculture Practices (BAP) requires electronic traceability for all food products exported to the US market.

To respond to buyer’s tracing requirements, Vietnamese fishery exporters are using paper-based tracing documents, assigning their own code numbers for production batches and stamping these codes on carton boxes when shipping out. When buyers make tracing inquiries, they scan the codes on these carton boxes and send them back to the Vietnamese producers, who then look them up in their document files and send information back to the inquirer. However, this process can only meet basic buyer’s tracing requirements and is time consuming and oftentimes unreliable.

## The TraceVerified Project

With a strong belief in the necessity and potential of electronic traceability solutions for the food industry of Viet Nam, in 2011 the Sac Ky Hai Dang Company made a proposal to the Global Competitiveness Facility (GCF) funded by the Danish Government (Danida funding) to start the **TraceVerified project**, which included electronic traceability, training and consultancy services for fisheries and other agro-product value chains for SME exporters in eight target provinces. As a trademark, “TraceVerified” was registered with the National Office for Intellectual Property of Viet Nam. Within eight months, TraceVerified had launched its new software at a workshop called Electronic Traceability, held in concurrence with the Viet Nam Fisheries International Exhibition (VIETFISH 2012) in Ho Chi Minh City.

TraceVerified is about verified traceability information. The system, built according to international standards, is highly compatible with target supply chains and is simple in use for any stakeholder, from producers to processors, buyers and consumers.

Figure 1: TraceVerified Services



Source: TraceVerified (2015)

## II. TraceVerified facilitates the participation of Vietnamese SME exporters in Global Value Chains (GVCs)

The TraceVerified project aims to develop and implement a paperless, low-cost, user-friendly application for the various aquaculture supply chains in Viet Nam (consisting mostly of SME producers) to electronically trace and track various information along their supply chain, to ensure end-product quality, hygiene and other requirements of buyers, importers, import countries' regulatory bodies and consumer associations.

Electronic traceability systems can help Vietnamese aquaculture exporters to:

- Meet traceability requirements as per rules and regulations of the EU, US, Canada, Japan and to operate in accordance with the regulations of state agencies.
- Ensure the ability to store and trace information of shipments through electronic systems and identify the units of product through each stage of the production process, processing and distribution.
- Support companies to perform recovery and removal of unsafe/substandard units quickly and accurately, protect consumers and the brand reputation of the business.
- Minimize the impact of product recalls by limiting the scope of related products to improve business processes.
- Monitor and control the rapid flow of information in the production chain from hatcheries, farms, collection and transportation, processing plants, and storage to export.
- Provide importers, buyers and partners with real-time and accurate information about the origin of the products and materials.

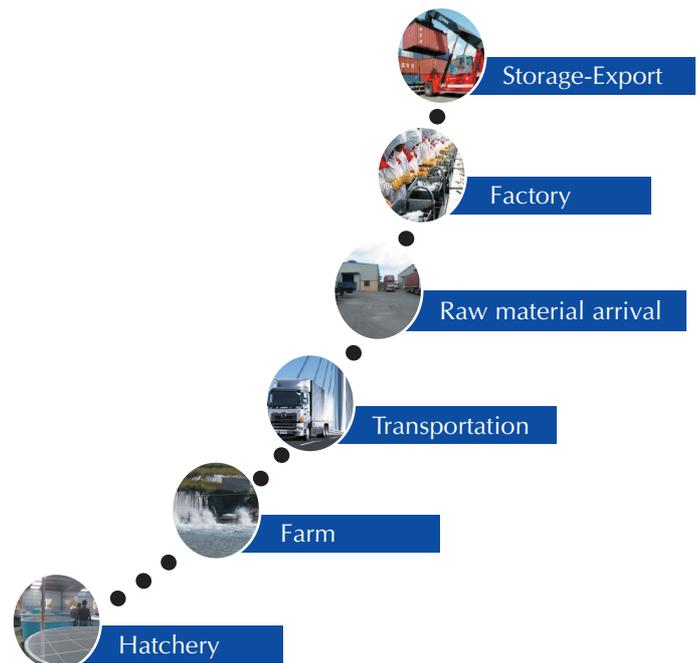
## III. Key functions of the TraceVerified application

Companies have to provide minimum information for each critical traceability control point. All information recorded in the traceability system is collected in a central database accessible by users with individual and personal credentials. All products are marked with the TraceVerified label.

The system offers a dynamic database in which information can be updated, changed and

- Share testing information and certification of food safety to promote a trustworthy image to the clients.

Figure 2: Information Sources Across the Supply Chain



Source: TraceVerified (2015)

- Use traceability codes in accordance with international standards instead of using internal access codes limited to the operations of the enterprise setting. Make sure the access code is unique and is recognized worldwide.
- Facilitate more efficient and effective customs' clearance.
- Reduce costs and waste of time with the data management in information technology, by eliminating errors in the paper records. The enterprise information management is closer to its production.

categorized. This database generates a wide range of optional reports based on field selection. The access code is unique for each shipment and consistent with international standard codes such as S1, QR Code, and T-Code. The "TraceReport" produced can be customized for clients according to their export markets.

TraceVerified is a 100% Vietnamese developed, low-cost IT system that works on common platforms and devices and does not require significant investment in new hardware or devices. GS1 is used

as base code for larger TraceVerified users who are fee-based members of Vietnamese GS1 Association. T-code (free of charge) is used for small users and farms. Handheld, low-cost QR code scanners are used and end-users only need to have minimal user training. TraceVerified project provides local IT support (on phone and online) at very low cost to customers in Viet Nam.

**Figure 3: Sample TraceVerified Stamp**

*Stamp Components:*

To the right: GS1 Code; upper line: T Code (optional); center: QR code



Source: TraceVerified (2015)

#### **IV. How did Vietnamese aquaculture SMEs embrace TraceVerified?**

Between 2011 and 2014, the TraceVerified system was successfully implemented in the following supply chains:

- *Shrimp producers for export:* Minh Phu Seafood Corporation, Quoc Viet Co., Ltd.
- *Pagasius producers for export:* Nha Trang Seafoods F17 Joint Stock Company, Can Tho Seafood Import-Export Corporation (CASEAMEX), CAFATEX Seafood Corporation, Saigon-Mekong Seafood Co., Ltd.
- *Tuna producer:* Ba Hai Co., Ltd.
- *Fresh fruit for export:* Red Dragon Trading and Services Co., Ltd.
- *Canned fresh juice for export:* Nghe An Food Corporation
- *Supermarket:* Big C An Lac (pork chain)

More significantly, in April 2014 Big C, one of the biggest supermarket chains in Viet Nam signed a contract with Sac Ky Hai Dang Science Technology Services Joint Stock Company (EDC-HD), the developer of TraceVerified, to pilot the electronic traceability system in their pork supply chain with E-bon, Big C's nationwide pork supplier.

Customers who have been using TraceVerified testify that the system has been:

- Relevant, adaptable to the current state of supply chains in Viet Nam.
- Easy to use, as it does not require big investment upfront, and it is affordable for small and medium businesses and farms.
- Easy to access for consumers and government agencies that can trace information from available devices like smart phone and tablets.
- Useful to store and search for information in multiple ways, including by lots, customer names, and dates.

In addition to making information available to the public, the TraceVerified system is also a risk management tool that ensures customers' information is safely and securely stored, while still allowing government inspectors to make queries as needed.

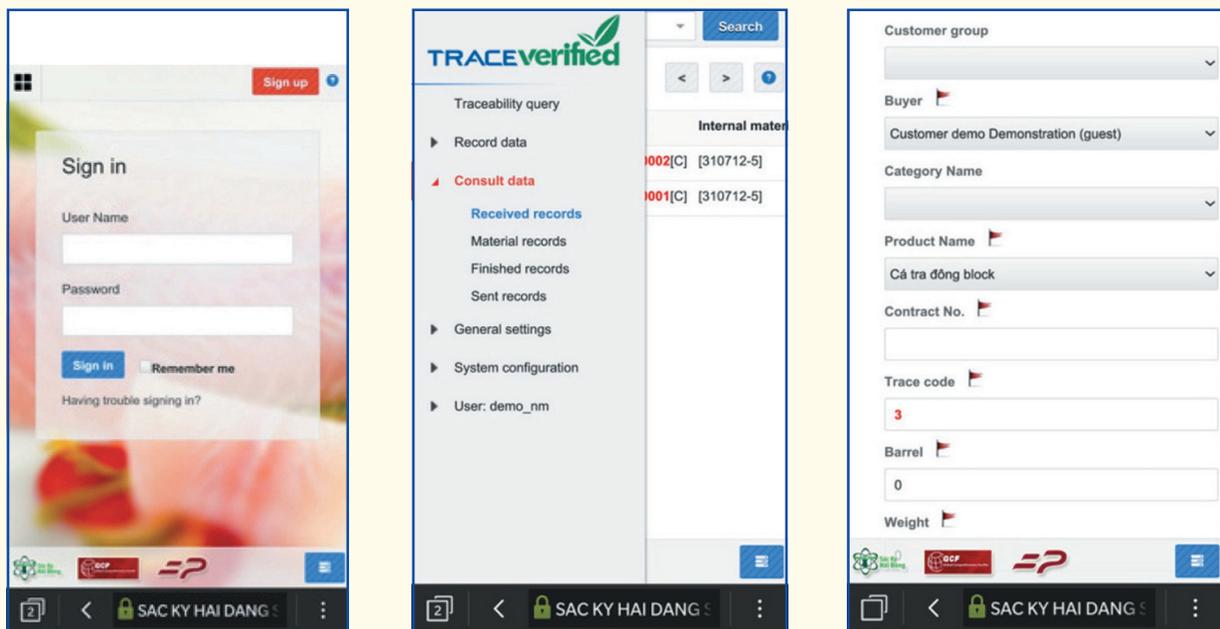
During the initial period of implementation of the project, the TraceVerified team undertook a range of activities to identify the specific traceability-related bottlenecks along the supply chain information management system, and build the trust, confidence and capacity of users. The team undertook many initiatives, including:

- Organizing 10 supply chain needs assessment (with reports and recommendations for electronic traceability) to survey the following agricultural and fisheries supply chains: shrimp, catfish, Bluefin tuna, rice, tea, sweet potato, frozen vegetables, dragon fruit, fruit syrups, honey, and cashew nuts, in An Giang, Lâm Đồng, Cần Thơ, Khanh Hoa provinces.
- Conducting 14 workshops to raise awareness in electronic traceability in general and TraceVerified in particular, in Viet Nam, the EU and the US, and presented TraceVerified at numerous other workshops;
- Conducting 18 training courses on traceability, GS1, management and marketing skill for various supply chains and regularly distributing TraceVerified e-newsletters to update them on latest improvements in the TraceVerified application.
- Taking part in policy consultations with the Food and Agriculture Organization's (FAO) Viet Nam office, Ministry of Agriculture of Viet Nam, General Department of Fisheries, VASEP and other stakeholders to enforce more stringent food quality and food hygiene standards, including advocacy for tracing and tracking policies.

## Innovative traits of TraceVerified

1. Low cost: free to the information beneficiary (consumers, authorities, importers, buyers) and annual cost for food producer from \$1 000 to \$2 000 (depend on company size).
2. Minimum investment in hardware and software needed.
3. Works on smartphones in order to encourage more farmers to use TraceVerified systems, EDC-HD has upgraded the software so that farmers can input data into the system from mobile phones.
4. The software also includes Excel forms with pre-built formulas, as an alternative when buyers require data inputs to the TraceVerified system and there's no Internet for online connection to the system.
5. Easy to use by small scale farmers, with minimal instructions and training.
6. Possibility to scale up initiative and to replicate within other supply chains.

Figure 4: TraceVerified Interfaces



Source: TraceVerified (2015)

With TraceVerified, information about different aspects of the farming process, collection or

**V. Taking stock: success factors from TraceVerified project**

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