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## Food Safety at which costs?

### Turning the increasing demands for traceability into opportunities for developing countries

The world of food production becomes a more global market every day. Retailers, producers, processors, traders and national governments all over the world are forced to comply with the latest product and process requirements with regard to food safety and chain transparency. The number of preferred and exclusive partnerships between supply chain partners is increasing, which is encouraged by the implementation of new - and costly - tracking & tracing systems. These developments impose possible new risks and challenges for all parties involved.

Quality requirements and legislation on food are imposed by governments and private companies in the Western world and will have consequences for food-companies and producers in developing countries. What share of the cost do the latter have to bear? A complex question that in this paper will be bounded to the impact of the enforced demand for advanced tracking & tracing systems and chain transparency. After a short outline of current developments in the area of food safety and tracking & tracing, the focus will shift towards their consequences for developing countries. As a result we try to pin-point critical aspects and to draft opportunities and expectations for governments and food producing companies in both developing and developed countries in order to guarantee a safe future of global food supply.

This paper delivers background information for policy and decision makers related to the topic. Tracking & tracing systems have to offer more than simply the fulfillment of law requirements. The ongoing challenge is to find the most suitable application at the right place.

Keywords: Food, Food Safety, Food Standards, Traceability, Tracking & Tracing, Developing countries



## 1. Trends and developments in safe global food supply

Extra attention from governments and media have caused food safety to become a real hype in recent years, even though food products in western markets probably have never been as safe as they are now. The process of improving the safety of global food supply is still continuing. Visual trends that accompany this are:

- Formal trade barriers for food import and export are slowly disappearing (GAT/WTO agreements).
- New non-trade barriers arise (technical barriers). For instance the European Union launched the General Food Law which requires EU food-companies to have a fully operational tracking & tracing system by 2005.
- Preferred and exclusive partnerships, based on trust and audits, between supply chain partners are increasing.
- Analytical methods keep improving in detecting previously unmeasurable amounts of contaminants e.g. herbicides, pesticides, hormones. When detection-levels decrease standards are often set more stringent even if the necessity for this is not proven scientifically.
- NGO's (consumer organisations, animal welfare organisations, environmental organisations) closely watch and, if necessary, criticise all activities which might endanger sustainable food supply.
- Private companies, especially the retailers, become more powerful but at the same time more vulnerable. Their corporate image has to be guarded at all times (scandals, recalls).
- Furthermore private companies more and more attach importance to a sustainable image and promote their corporate social responsibility. This results in product and process demands for their suppliers that exceed legal requirements.
- Despite expressed priorities regarding global sustainability (safe food, animal welfare, social responsibility, etc.), for most consumers price is still the number one decision parameter.
- Consumers have become used to a year-round supply of fresh produce including different types of exotics.
- Governments introduce new food-safety aspects, e.g.: bio-terrorism (USA) and allergies (EU).

As a consequence of these trends retailers shift responsibilities for food safety backwards in the chain towards the producer. All international supply chain companies are forced to comply with the latest

product and process requirements with regard to food safety and chain transparency. Traceability, and therefore tracking & tracing systems, thus form a critical part of those requirements.

## 2. Traceability

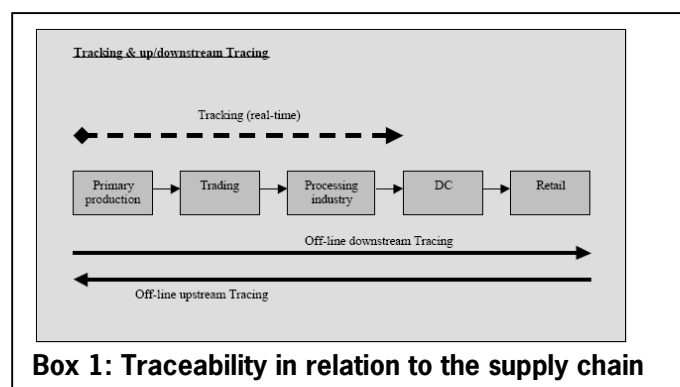
In order to value food products on food safety and sustainability aspects it is necessary to know the products' history. This asks for traceability.

*Definition: Traceability is defined as the ability to follow (in real time) or reconstruct (off-line) the logistic route of singular or compound products through all stages of production, processing and distribution.*

Traceability comes in two forms, real-time and off-line (see Box 1). Tracking means that at each moment it is possible to determine in real-time the exact location and status of the product in the logistic chain. Tracing refers to off-line, afterwards, reconstructing the history of a product, both downstream (where did my raw material go) and upstream (where does my product come from). In more sophisticated tracking & tracing systems it is also possible to trace back what conditions the product has been exposed to apart from the physical location. Traceability is always restricted to a minimal lot size which indicates the amount of products that is identified with the same identifier (e.g. crate, pallet, a day production).

Although different kinds of tracking & tracing systems are imaginable, varying from notes on paper until high-end computerised systems, basically they are all the same in that it should at least be possible to distinguish the three major tracking & tracing modules identification, registration and data processing.

A tailor-made tracking & tracing system should at least address the aspects mentioned in box 2. The first crucial step for companies is to determine their goals



for such a system. Possible answers for this might be both external and internal driven, e.g. (see also Box 3):

- Guaranteeing food safety and securing recall management.
- Providing allergen free products.
- Identity Preservation, e.g. guaranteeing the absence of GMOs.
- Equipping an organic product chain.
- Reduction of (logistic) costs.

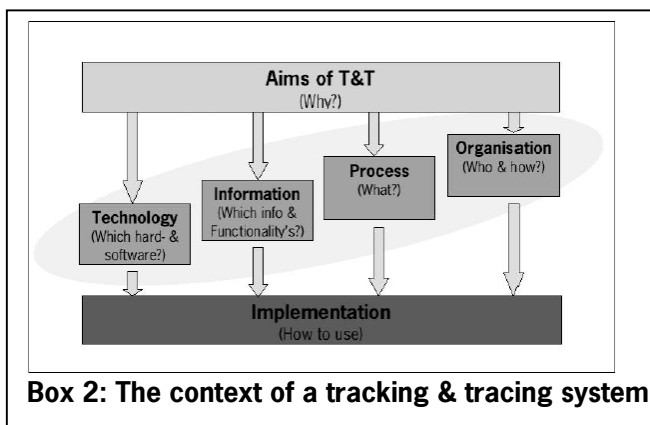
When it is clear why a Tracking & Tracing system should be deployed, the areas of organisation, process, and information have to be dealt with, leading to a blueprint of the final system. At this time, it becomes possible to choose the most suitable technology to implement the system.

In practice, industries aiming at traceability are linking different software packages they use (e.g. MES and ERP systems) in order to fulfil the traceability requirements. The resulting solutions are often considered sub-optimal. Adequate support for small and medium enterprises is scarce, but gaining interest.

### 3. Incentives for traceability

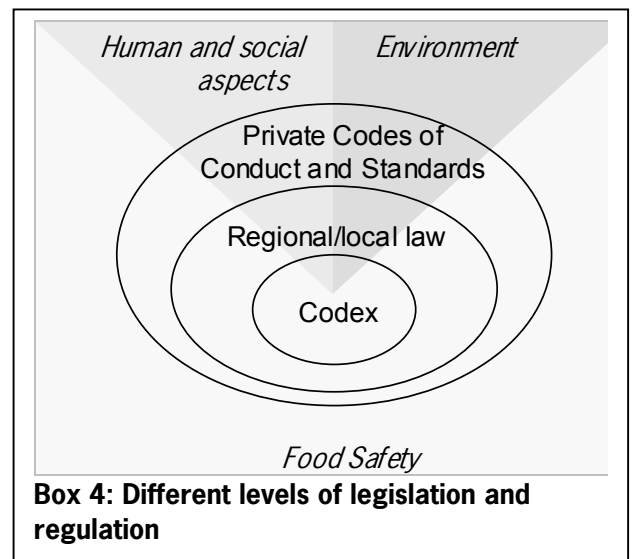
Food production companies in general have not focussed on chain-level traceability in the past. Tracking & tracing systems that exceed company boundaries are still exceptional. Individual food companies experience little added value for implementing detailed and costly tracking & tracing systems. They tried to balance between preventive measures, such as HACCP-based systems, and the curative and reactive approaches such as traceability.

Recently, however, traceability in chains has obtained more attention, because of expanding international agreements, national law and industry standards (Box



4). Whereas all legislation needs a scientific ground, private companies are free in defining their desired standards as long as market conditions stay in line with them.

In global context, organisations like WHO, FAO and WTO developed main food safety standards and agreements, e.g. SPS (Sanitary and Phytosanitary Measures) including Codex Alimentarius and IPPC (International Plant Protection Convention), and TBT (Technical barriers to trade) including ISO (the International Organisation for Standardisation). Within these standards tracking & tracing requirements form an integral part to realise and safeguard the implementation of formulated goals. Important papers on traceability have recently been produced by the Codex Alimentarius committee FICS (Food Import and Export Inspection and Certification Systems) and by ISO. The ISO 22000 standard, currently under preparation, will standardise food safety management systems based on traceability directives. Still however, there is no specific and world-wide accepted standard with regard to traceability of food products.



As an example of regional legislation counts the EU approval of the General Food Law (EC Regulation 178/2002) which, starting at January 1st 2005, among other things demands for:

- Supply chains within the EU have to be fully traceable on batch-level. This means in case of a recall that at least one upstream tracing (to detect which production phase/raw product causes the problem at hand) and one downstream tracing (to detect where possibly other affected products can be found) have to be performed.
- Importers in the EU have to check on the exporter. The importers are responsible themselves for the safety of the products in case the exporter does not comply with the General Food Law.
- Export to non-EU countries also has to fulfil the requirements of the General Food Law.
- The discussion on what to do with products arriving in the EU which do not satisfy EU levels, destroying or sending back, is still open.

Within certain borders, each EU member state has the right to fit the General Food Law to its own national circumstances. This means that differences may exist between the law texts and implementation guidelines that will be used in the individual countries.

From the perspective of the producer, two points of view towards traceability can be distinguished. On one hand, traceability can be employed to safeguard consumer health and safety of food. On the other hand, traceability can be seen as a tool to regain and maintain consumer trust and confidence in a brandname which will add extra value to the product resulting in a higher price.

The latter is the main reason why private companies have started to distinguish themselves in the area of sustainability and social responsibility. They go far beyond international engagements and laws, and add their own 'Code of Conduct' which can be used in the communication towards citizen organisations and consumers. Besides Codes of Conduct that are formulated by companies on their own, there are several joint initiatives in which competing companies try to standardise and harmonise different certification schemes, e.g.:

- EurepGap (a.o. fresh produce)
- Utz Kapeh (coffee)
- Marine Stewardship Council (fish).
- British Retail Code (processed products)

Furthermore the main world retailers have set up the Global Food Safety Initiative (GFSI), which tries to harmonise the different certification schemes by means of benchmarking against the GFSI Guidance Document.

## 4. Consequences for developing countries

As mentioned in the previous paragraphs even in Europe the introduction of tracking & tracing systems develops slowly. For developing countries there are still more barriers to overcome. What does the increasing attention for tracking and tracing actually mean to governments, producers, processing industry and wholesalers in developing countries?

### Financial aspects

- To make tracking & tracing systems successful money and effort has to be invested in education, knowledge, infrastructure, hardware, etc.
- Once the system is functioning the costs of audits and/or certification will be substantial, especially when they have to be executed by foreign experts.
- Developing countries might struggle with knowledge questions (regarding f.i. measuring residual limits) that do not occur in the North and that are therefore not addressed yet. Additional investments might be needed to solve those questions.
- Decreasing Maximal Residue Limits (MRLs) increase the risk that products will be rejected on the market.

### Trade aspects

- Since competition is high, to preserve their 'licensee to deliver' developing countries have to fulfil the new demands for the same or even lower prices.
- Preferred supplier chains may eliminate competitors but increase the dependency on one single buyer and/or market segment.
- Importers may select countries that already have a relatively high infrastructure (banks, roads, laboratories, export board, etc) making entry into new markets or even keeping existing markets difficult for developing countries that are too far away from meeting the new demands.
- Because different (EU) countries and retailers have different demands it becomes more difficult to switch between buyers.

### Social aspects

- Whereas the tracking and tracing demands might be completely logical in the North, for developing countries they may seem exaggerating or even absurd. This can not be blamed on indifference, but mainly on a different cultural background with deviating standards. (e.g. standards for animal welfare).
- Developing countries may experience the requirements as dictated on them and may not feel much solidarity with it. If stakeholders in developing countries, both farmers and governments, would have the opportunity to participate in the discussion of new standards, they may be more willingly to act accordingly.

### Legal aspects

- Developing countries supply to Europe as well as the United States and Japan. This means they have to fulfil very different sets of legal and industry demands.
- In most cases national law is not formulated to coincide with those demands, which might cause contradicting requirements.
- Fraud might become more tempting with more stringent requirements.

### Political aspects

- Tracking and tracing requirements and standards may be seen as hidden trade barriers to protect national or regional markets. The fact that the legal requirements come at a time that the free market is formally embraced as the global development paradigm raises suspicion about the true reasons behind these developments. (See some of the propositions on the next page.)
- The requirements generally have a bias on the better-organised countries and especially also on the better organised producers within a country. They can more easily be implemented with larger scale primary producers and processors than with near-subsistence farmers and village industries. These may thus lose their 'license to deliver'. The new rules may thus run contrary to national policies on rural development.

## 5. Changing threads into opportunities

How can governments and private companies in both developing and industrialised countries, contribute to a more sustainable and safe supply from developing

countries? Should they reconcile to the trends, or are more radical actions necessary to modify these trends? On the next page, as an example, four propositions regarding food safety and the relation to developing countries are stated which show that different viewpoints on those questions exist.

The trends that have been identified in Section 1 are however moving steadily, and will not likely be stopped completely. Therefore, as a start, policy strategies should find ways to optimally adapt to irreversible developments, in order to shape trends into the desired direction.

### Adapting to developments

Tracking & tracings asks for capacity building and development. This goes beyond the actual implementation of an IT system. Also more general services are needed like laboratories, certification boards and research institutes. Companies in countries who have accomplished a suitable infrastructure will have a head start when setting up new supply chain relations. The government and private sector need to identify their respective roles in this and how to share costs among them.

A major challenge is thus to guarantee a **return on investments**. Because of the high competition between producers, investments do not automatically result in a higher market price and therewith higher revenues. Extra income should thus come from other benefits from the system, e.g.:

- A joint information system from producer to importer allows for an optimised shipping based on product quality. This way it is possible to save on product losses (e.g. through just-in-time deliveries or by refining the match between demand and supply or even between demand and harvest time).
- Rearrange supply chains in such a way that local capacity in developing countries can be used to add value to the products. A good tracking & tracing system supports this, because guaranteeing the quality of *processed* products becomes possible.
- Use the opportunity not only to fulfil external demands, but also to improve internal business processes in order to distinguish oneself from the regular.
- The consumer market at this moment is open for niche products, e.g. using a geographic indication to create added value. Therefore, it should be tried

**Proposition 1: Food Safety is largely exaggerated in the desire for sustainable food supply**

During an inspiring discussion on food safety, Tim Lang takes from the table a trendy bottle of Italian mineral water: "You can analyze this bottle in two ways. You can use a microbiological analysis to prove the water is safe, but you can also ask the question: Isn't it idiot to import Italian mineral water when tap water is as safe?"

*Source: Volkskrant (Tim Lang is Professor of Food Policy at the London City University)*

**Proposition 2: Liberalization and sustainability are antipodes.**

"The logic of liberalisation cannot be applied to the agricultural sector as such, at least as far as it is not exclusively seen as a commercial activity. For this sector is faced with many other goals in the field of environment, landscape management, agricultural use, food quality and availability of food." (Pascal Lamy, European Commission). Therefore, f.i. the abolition of export subsidies for EU members will not improve the conditions in developing countries.

*Source: Boerenbond Belgium, COPA-COGECA*

**Proposition 3: The European attitude towards food safety is haughty and arrogant, comparable with the attitude of the USA towards Iraq**

The demands on food safety result in safe export products whereas the inferior products remain in the developing countries themselves. While in fact food safety in the rich world has very little burden, it has a much bigger impact in developing countries due to:

- Poor water
- Poor hygiene
- Poor quality standards for food

Furthermore, the EU is imposing its safe food norm on other countries. Who says that those countries are not perfectly capable of determining that themselves?

**Proposition 4: Efforts to impose standards on exporters from developing countries respond more to the particular anxieties of corporate retail management than to the concerns of the workers in those countries themselves**

To be able to export, companies and producers in developing countries have to make large investments to comply with retailer standards. The prices they receive for their produce, however, remain flat since supermarkets are in an ongoing price competition and therefore not willing to pay higher prices. Thus profit margins decrease and only the wealthiest and largest producers will remain active.

*Source: Susan Freidberg, iied*

- to make the combination of transparent and sustainable supply a product-market-combination that is appreciated and paid for by the consumer.
- Besides safe food, healthy food is also important. Developing countries could use their diversity in tasty dishes and treats that are healthy to create new markets in industrialised countries.

Next, the **transfer of knowledge and experiences** deserves attention. While technology developed in history, Western companies adapted their information systems bit by bit. This mostly resulted in a lot of smaller systems that are linked together on an ad-hoc basis. One advantage for new users of tracking and tracing systems is that they can use proven computerised systems rather than inventing the wheel themselves. The whole process of developing a

tracking & tracing infrastructure will however need some support, e.g.:

- Education and training on tracking and tracing and the use of IT systems.
- Building pilots that serve as an example for other producers and exporters.
- Making law texts transparent and understandable for processors and producers.
- Supporting the actual implementation of the system.
- Demonstrating the local advantages of operational tracking & tracing systems.

Finally a lot of effort still has to be spent on the actual **local acceptance**. Some differences between developing countries and the North may be explained by the existence of different cultural backgrounds. Improving the infrastructure of a developing country

without being open for the special needs and expectations of that country is not likely to work. Therefore, all actions like the ones defined above, should be accompanied by an open and equal dialogue which both sides should enter with an open mind. Such a dialogue is necessary both at government and company level. An example to enter this dialogue is to only grant subsidies for tracking & tracing if besides the original goal at least one other more innovative aim will be reached. Actually, this means to look for benefits that exist beyond the export to western countries in a way that available resources have to be used in a creative way.

Do realise that sharing tracking and tracing information with others is always a sensitive matter. Also in for instance EU supply chains, companies need to trust the actors behind the information system storing the tracking and tracing information. This is tricky because always the fear exists that confidential information is abused and that competitors would profit as a result. This observation puts even more pressure on the suggestions in this paragraph, because they relate to building healthy and respectful supply chain relations. Without such a relation real trust will never be present.

### Launch action

The opportunities listed above will not be realised all at once. As a start, governmental bodies may launch the following actions:

1. Discover together with governments in developing countries how traceability can be part of general policy with regard to increasing the country's competitive position, guaranteeing food supply in the own region, and local sustainable entrepreneurship. This way, governments become 'partners in development' as they create conditions for a pro-active response towards the supply chain quest of food safety.
2. Build 1 or 2 representative traceability pilots in a food chain starting in a developing country which show the benefits of increased co-operation between companies in North and South in managing the available food supply.
3. Quantify the effects of increasing traceability demands for developing countries. The results can be used to formulate strategic actions and to support discussions in EU and Codex commissions.

This paper has focussed on traceability, but a lot of the contents also relates to standards in general. This already indicates that traceability and all discussions around it, have to be seen in a larger context. Nevertheless, tracking and tracing is not only a control tool but it has also a lot of advantages. The ongoing challenge is to adapt it at the right place in the right way.

*This study is a follow-up on the KLICT position paper 'Traceability in Food Processing chains' (Vernède e.a.2003). Interviews have taken place with representatives of the Ministry of Agriculture Nature and Food Quality (IZ, VVA and EC), the Ministry of Foreign Affairs (DGIS), Wageningen Agricultural University, private companies and sector organisations. Furthermore an intensive literature and internet search has been carried out.*

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