Sustainable meat quality and standards – What the United Nations Economic Commission for Europe (UNECE) brings to the table

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**Historical legacy - Period after World War II in UNECE region:**

○ National quality standards regulated trade in agricultural products within each country’s national borders

**Existing national regulations were often barriers to the growing international trade within Europe.**

**1949 UNECE –** was Europe’s only functioning pan-European body – establishes **Working Party on Agricultural Quality Standards**

○ To harmonize national standards into international standards

○ To provide a mechanism for their practical enforcement
TRADE

- Governments and national, regional and international governmental organizations (such as OECD, Codex, FAO, UNDP, EU, WTO, ITC, UNCTAD)
- Professional organizations and the private sector
- NGOs, donor agencies

Result:
Consensus decisions and including industry concerns helps develop standards that reflect trading practices, rather than normative ideals of what the product requirements should be.

Increased use of standards by industry
UNECE’s Agri Quality Framework

UNECE
Quality for trade since 1949

Working Party on Agricultural Quality Standards

Fresh fruit and vegetables, nuts, dried fruit, meat, eggs, seed potatoes

- Over 100 voluntary marketing/quality standards, guides and 1000 experts
- Many governments introduced quality standards for domestic markets as well as import and export
Explanatory guides and Apps

- interpret the standards, help with the grading of produce, ensure uniform interpretation
- reduce risk of rejection, help
- resolve disputes,
- provide guidance (disease guides, terms used, coding references)

for producers, traders, buyers, inspectors
UNECE – Creating voluntary international models and best practice

Implementing UNECE Standards

Creating international best practice

GOVERNMENT

EU

FAO/WHO Codex Alimentarius

OECD

PRIVATE SECTOR

National Standard

EU Regulation

Codex Standard

Explanatory Brochures

Reference in Contracts
Priorities

Working towards the SDGs

• Goal 2. End hunger, achieve food security and improved nutrition and promote sustainable agriculture
• Goal 12. Ensure sustainable consumption and production patterns
• Goal 13. Take urgent action to combat climate change and its impacts
• Goal 17. Strengthen the means of implementation and revitalize the global partnership for sustainable development
What is the business case for helping to achieve the SDGs? Why does it matter for business or academia or research? And what can business do?
The Future: new challenges and the Sustainable Development Goals

- Sustainable trade
- Food Loss
- Market Access
- Food Security
Over the years UNECE has evolved into a platform for the development of agreed international best practice for international and national trade in agricultural produce.

Countries turn to UNECE for advice on regulating their national markets to obtain quality which improves nutrition and food security.

Food security exists when all people, at all times, have physical and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life”. (World Food Summit, 1996)
Today, the UNECE, national, regional, international regulators and the private sector have to take into account:

Concerns of consumers, producers and retailers about the origin of their food, its safety and quality and the potential waste resulting from technical requirements or standards.
THE FOOD LOSS/WASTE CHALLENGE IN NUMBERS

- **1.6 Billion Tons**
  - Food lost and wasted
  - Source: FAO, BCG Flow model

- **$1.2 Trillion**
  - Revenue loss
  - Source: FAO, BCG Flow model

- **870 Million**
  - Hunger
  - Source: UN FAO, BCG Flow model

- **8%**
  - Greenhouse gas emission (wasted food)
  - Source: UN FAO, World resources institute

**PROJECTED INCREASE BY 2030**

- **2.1 Billion tons**
- **$1.5 Trillion**
THE FOOD LOSS/WASTE CHALLENGE IN NUMBERS – THE END CONSUMER

Per year, consumers in rich countries waste almost as much food (222 million t) as the entire net food production of sub-Saharan Africa (230 million t).

Per capita waste per year by consumer:
95-115 kg Europe/ North America,
6-11 kg Sub-Saharan Africa, South and South-East Asia.

Source: FAO
THE FOOD LOSS/WASTE CHALLENGE IN NUMBERS

45% FRUIT & VEGETABLES FOOD LOSSES
Along with roots and tubers, fruit and vegetables have the highest wastage rates of any food products; almost half of all the fruit and vegetables produced are wasted.

3.7 trillion apples

35% FISH & SEAFOOD FOOD LOSSES
8% of fish caught globally is thrown back into the sea. In most cases they are dead, dying or badly damaged.
This is equal to almost 3 billion Atlantic salmon.

30% CEREALS FOOD LOSSES
In industrialized countries, consumers throw away 286 million tonnes of cereal products.
713 billion boxes of pasta
THE FOOD LOSS/WASTE CHALLENGE IN NUMBERS

20% MEAT FOOD LOSSES

Of the 263 million tonnes of meat produced globally, over 20% is lost or wasted.

This is equivalent to 75 million cows.

The chart below shows the distribution of meat losses in different regions:

- Europe
- North America and Oceania
- Industrialized Asia
- Sub-Saharan Africa
- North Africa, West and Central Asia
- South and Southeast Asia
- Latin America

The chart indicates the percentage of losses in each category, with different colors representing animal production, slaughter, distribution, processing, and consumption.
Medium- and high-income countries food lost/wasted mainly at later stages of supply chain. Consumers waste more. In developing countries, losses occur mainly at post-harvest, production, trade levels. Consumers plays a lesser part.

Source: FAO
SCENARIO:

- Currently, livestock production employs at least 1.3 billion people worldwide.
- About 600 million of the world's poorest households keep livestock as an essential source of income.
- Meat production is projected to increase another 19% by 2030.
- Livestock production accounts for 40 percent agriculture output in developed countries and 20 percent of agricultural output in developing countries.
- The introduction of advanced genetics, feeding systems, animal health controls and other technologies over the past four decades allowed industrialized countries to reduce their overall land requirements for livestock by 20 percent while doubling meat production.
**FAO Report** – Livestock and the United Nations Sustainable Development Goals

- millions of poor are animal-dependent small-scale producers in developing countries.
- even the most modern post-industrial societies remain critically reliant on animals for food and nutrition security.
- the livestock sector can play a key role in sustainable development by providing food, jobs and income, resilience, and economic opportunities including to women and youth.

but changes in policies and practices can optimize those contributions.

FAO’s *World Livestock: Transforming the livestock sector through the Sustainable Development Goals*: debate so far largely focused on how the sector can produce more to satisfy increasing demand for animal products to feed a growing global population while at the same time reducing its environmental footprint.

While a worthwhile objective, FAO's new report argues for a broader and more ambitious approach. Sector can make major contributions to the 2030 agenda, but important choices have to be made.

Pre-conditions: addressing several complex interactions including competition over land for the production of feed instead of food; the highly competitive sector through higher levels of market concentration; inclusion vs exclusion of small-producers in domestic and export markets.

Meeting these challenges will require:
• countries to look closely at their national livestock sectors and develop policies tailored to local circumstances and designed to promote equitable growth.

   In particular, measures will be needed to empower smaller-scale producers to ensure they are primary actors in and beneficiaries of the livestock sector's continued growth.

Key challenge in developing countries: livestock sector is highly segmented, with sharply different levels of labour productivity in processing versus production and, within production, between commercial and subsistence farmers.

Source
Policies:

- Improve labour productivity of small-holders and focus on high-value-added and labour-intensive activities in order to unlock the sector's "multiplier effect" in job generation and poverty reduction. Rapid livestock growth does not always translate into fast poverty reduction (needs to be better analysed and addressed).

- Improve access of smallholders and pastoralists to productive resources, information, technology, training, assets, and credit and to strengthen producer groups.

- Trade reforms, investment and innovation will also be needed.

- Policies and practices that increase the livestock sector's efficiency and reduce its environmental footprint should be vigorously pursued.

For example, FAO studies estimate **wider adoption of existing best practices and technologies in feeding, health and husbandry, and manure management - as well as greater use of improved technologies - could help the global livestock sector cut its GHG emissions by as much as 30 percent.**

Source
FAO Report – Livestock and the United Nations Sustainable Development Goals – escaping the energy trap and escaping under-development and poverty

Alternatives use of cow manure to substitute missing connections to national electricity grids in developing countries (e.g. sub-Saharan Africa and Southern Asia, rural villages and remote areas)

Potential: Poultry, pigs, sheep, cattle and other domesticated animals generate around 85 percent of the world's animal waste

Livestock manure → biogas

renewable fuel source for more than a billion people for domestic use, giving them access to affordable, reliable, and sustainable energy,

Between 2003 and 2013, China built 42 million small household biogas plants run on chicken and cattle manure for light, heating and power. And argri biogas power stations with a daily capacity of 18 000-60 000 kWh.

By 2003, India had already installed some 3.4 million family-size biogas reactors in isolated parts. In 2015, 4 mio family-size biogas plants.
How does UNECE cover sustainable food trade

In general: through the development of international agricultural quality standards and recommendations for fresh fruit and vegetables, dry and dried produce, meat and seed potatoes for domestic and international trade,

• To reduce transaction costs and risks by providing a standardized description of the product to be traded.
• To keep quality thought the trade chain to the end-consumer
• To protect producer and consumer interests.

Keeping quality from farm to fork is an efficient tool to ensure sustainable consumption, prevent food loss and reduce the economic, climate and resource impact of food wasted. and improves the food redistribution and security.
UNECE’s Food Loss work

Specific focus: UNECE and the food loss challenge

- Quality matters but constant **review of quality standards** for agricultural produce
- Focus on **losses in the trade process** before it reaches the consumer and even retail
- Designed an **online blockchain-supported marketplace**
- Developed a simple **food loss recording methodology**
- Development of a **Code of Good Practice** on handling fruit and vegetables along the supply chain
- **Comprehensive resource page** on the food loss and waste challenge

Web page: UNECE and the Food Loss Challenge
http://www.unece.org/trade/agr/unece-foodlosschallenge.html
UNECE’s Food Loss work

Aim:

- Preventing, reducing and keeping as much food as possible in the human consumption chain
- Repurposing and redistributing food to feed all – Recovery and Redistribution (R and R)
- Help reach SDG 12.3
United Nations Sustainable Development Goals and the Specialized Section on Meat

• Emphasis on linkages to the meat sector’s economic role;
• Importance of e-trade to be more inclusive, save costs and improve efficiency;
• Reduction of environmental impacts and better resource utilization;
• The product’s use for food and nonfood purposes; the production of high-value protein with otherwise non-utilized resources (grass); and
• Specialized Section’s standardization of by-products for consumption and further processing.

• Development of national sustainability frameworks and a need to identify their linkages with components included in the standards.
• It was also important to consider possible negative impacts of e.g. poultry production as well the impact of the new manufactured meat products (artificial protein production).
How livestock and meat trade can contribute to sustainable development:

- Generating income and jobs
- Helping to access foreign markets
- Giving rural population and women greater economic opportunities
- Proving high-protein food and boosting children's nutrition
- Better natural resources use efficiency

Trade relations and international cooperation are more complicated to manage, but the only way to move forward including in reaching SDGs, standardization or research.

**Sustainable international e-trade for me(a)t” seminar:**
- To show how countries and the private sector develop and use electronic commerce, electronic inspection methods and e-certifications to make trade more efficient, both time- and cost-wise.
- Examples showed that electronic means can enhance the cross-border e-commerce solutions by facilitating procedures. The etrade example presented also showed a new way of applying international standard language
- to facilitate the trade of meat on electronic platforms as well as the need to prepare the meat standards for electronic trade.
- Electronic means and tools can be efficient options for the international meat trade today and in the future.

To increase sustainable trade, prevent and reduce food waste caused by produce held back for regulatory or administrative reasons and reduce the risk for fraud.
UNECE’s Smart Solution to Food Loss

Food loss management system to help trace and quantify the food lost and to distribute the currently “invisible” and unavailable food in alternative food chains.

• In this context, “invisible food” is food removed from the main supply chains for various reasons at different stages.

The primary objective: Quantify, account for systematically, makes available and repurposes to alternative buyers, currently “invisible” produce and generates data to prevent losses and increase sustainable food consumption
THE UNECE FOOD LOSS MANAGEMENT SYSTEM: B2B and B2G

Creating alternative supply chains for food currently lost or wasted along the entire supply chain

SELLERS: Producers, Farmers, Traders, Packers, Importers

BUYERS: traders, packers, hospitality sector, wholesalers, institutional buyers, charity, government
An Online Marketplace for Food Lost or otherwise Wasted for the food supplies that currently go to waste and are removed from the human food production and consumption chain to that brings all interested parties together. Interested parties are producers, traders, packers and logistic companies, hospitality sector, wholesalers, institutional buyers, charity and government agencies.

A traceability solution through Blockchain technology that enables tracking product journey and ensures quality certification validity.
BLOCKCHAIN

**Actors**
Various participating actors (Ex: producer, supplier etc.) in the lifecycle of a produce

**Traceability**
To track and record the participation of the actors that includes, date, location, profiles etc.

**Certifications**
Certification bodies who can certify the produce quality, norms and standards

**Trust**
Transactions that helps anonymous users trust and rate the various actors

**Product journey**
Information on the entire journey of the product life-cycle
Component 1: The marketplace B2B or B2G – blockchain supported

**Why invisible/surplus?**
- Not matching visual standards.
- Order cancellation
- Time limitations.
- Excess production

**Online Marketplace**
Online marketplace that provides opportunity to participants (businesses and governments) of supply chain to sell their Invisible products directly to end consumers.
Component 2: Food loss data generation - the benefits for governments/operators

Farmers, production level

Distributors, buyers

Packing stations or Processors

Logistics hot points (domestic and export)

Wholesalers at destination, importers, domestic

Food lost = Invisible/Surplus Food

Systematic measurements and Data generation in Component 2

GOVERNMENTS
To plan interventions, policies to prevent and reduce losses and waste, limit environmental impact, ensure food security and improved extension services. SDG implementations
ONLINE MARKETPLACE

The Steps and phases

- **Scalable and adaptable** model for all countries.
- **Local use first** – cross-border use later
- **Plug-ins for existing systems and methodologies** (e.g. quantification methodologies, traceability or certification).
- At a later stage: possibly, Plug-ins for consumer interface
- **Pilots in selected countries (rural areas and cities)**
- **Strong partners** at domestic level (governments, NGOs. Private sector) to ensure long-term ownership and maintenance
Thank you

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