STRATEGIES TO IMPROVE FOOD SAFETY AND QUALITY IN FOOD CHAIN

Prof. dr hab. Mieczysław W. Obiedziński
Waraw University of Life Sciences – Faculty of Food Science
Department of Biotechnology,
Microbiology and Food Evaluation
Division of Food Quality Evaluation
FOLLOWING GREEN PAPER 1997

These principles are:

- Incorporation of the three components of **risk analysis - assessment, management and communication** — which allow risk avoidance or prevention at source;
- Institutional separation of science-based **risk assessment from risk management** — which is the regulation and control of risk.
- A prudent approach to risk assessment and management should also be adopted;
- **Traceability** and use of tracing and trucking appropriate technologies from the primary producer, post-harvest, food processing and distribution to the consumer;
- **Harmonization of food safety** scientifically-based standards, equivalence in food safety systems — achieving similar levels of protection;
- And **effective food control and private certification bodies**.
The White Paper on Food Safety presents the outline of a new approach that has to enable food safety to be organised in a more coordinated and integrated way.

The overall objective of the White Paper - to outline a actions needed to modernise existing EU food legislation in order to make it more coherent, understandable and flexible, to promote better enforcement and greater transparency.

high level of food safety

to improving quality standards and reinforcing systems of checks throughout the food chain from farm to table.
• Risk-based approach to food safety is a crucial for effective management of food safety hazards.

• **Risk based strategies** demand careful follow-up and adoption of **good agriculture practices (GAP)**, **good hygiene practices (GHP)** and **good manufacture practices (GMP)** – which are food safety execution means and sound basis for hazard analysis critical control point - food safety management systems – **HACCP**.
Strategy of

FOOD SAFETY OBJECTIVES – FSO

for F2F approach

Acceptable level of Protection

ALOP
The strategic objective of traceability and quality assurance is to be able to trace a product back, to make it possible to locate sources of error or contamination – hazards to safety or quality that arose from any production stages. These include the obligation for feed and food businesses to ensure that adequate procedures are in place to withdraw feed and food from the market where a risk to the health of the consumer is posed.
The Minister of Health coordinates the Food Safety Strategy, Structural and legal subordination, and cooperation. 

The Team composition of Food Safety comprises: 1) Team Leader – Chief Sanitary Inspector, 2) Deputy Team Leader – a representative designated by the Minister of Agriculture and Rural Development, 3) team members – representatives of: Minister of Agriculture and Rural Development – 4 persons, Minister of Health – 4 persons, Chairman of the Competition and Consumers Protection Office – 2 persons, Minister of Environment, Minister of Finance, Secretary of the European Integration Committee, Chairman of Scientific Research Committee, 4) Secretary – appointed by the Team Leader a representative of the Chief Sanitary Inspectorate.

1) The Chief Veterinarian Officer works with the Sanitary and Epizootic Board and the State Veterinary Institute.
2) The Chief Inspector of Plant Protection and Seed Production will work with the Board for Monitoring the Quality of Soil, Plants, Agricultural and Food Products and the Institute for Plant Protection.
3) The Chief Inspector of the Agricultural and Food Product Trade Inspection will work with industrial institutes.
4) The Chief Sanitary Inspector works with the Sanitary and Epidemiological Board, the Institute of Food and Nutrition, and the National Institute of Hygiene.
Building up Food Control System

Legal standards fulfilment

COMPETENT AUTHORITIES

NATIONAL FOOD LAW

INDUSTRY

Laboratories

Official sampling
Legal standards fulfillment

COMPETENT AUTHORITIES

Laboratoria

Legal standards fulfillment

System Audit
Human Resources
Inspection systems
Procedures
Resources

INDUSTRY

Building up Food Control System

Supporting Agencies
Environment Protection
Water, Soil, Air, Waste.

NATIONAL FOOD LAW

COMPETENT AUTHORITIES

GMP
HACCP
Hygiene

CODEX
SANITATION SOP

SANITATION

Cleaning,

SOP

Building up Food Control System

Laboratoria

Audit System
Good Lab Practice
ISO 17025

System Audit
ISO 2000

Cleaning,

GMP
HACCP
Hygiene

SANITATION

COMPETENT AUTHORITIES
Building up Food Control System

Legal standards fulfillment

COMPETENT AUTHORITIES

Laboratoria

Official sampling

Procedures
Resources
Validation

Audit System
Good Lab Practice
ISO 17025

System Audit
ISO 2000

Cleaning,
SANITATION

GMP
HACCP
Hygiene

CODEX

SANITATION SOP

NATIONAL FOOD LAW

Supporting Agencies
Environment Protection
Water, Soil, Air, Waste.
Standards - GLP

System Audit
Human Resources
Inspection systems
Procedures
Resources

Building up Food Control System
Building up Food Control System
The Polish Centre for Testing and Certification is a leading organization with almost 50 years experience in testing and certification of products, certification of management system and training of personnel. The Polish Centre for Testing and Certification was established in 1994 by virtue of the Law on Testing and Certification of April 3, 1993. It is the successor of the Central Office for Product Quality transformed from the Office for Quality Mark (established in 1958). On January 1, 2003 the Polish Centre for Testing and Certification was transformed into one share company owned by the State Treasury.
• Polish Centre for Accreditation

• is the national accreditation body authorized to accreditation of certification and inspection bodies, testing and calibration laboratories and other entities conducting conformity assessments and verifications on the basis of the Act of Parliament of 30 August 2002 on conformity assessment system (the consolidated text Off. J. of 2004, No 204, item 2087 with further changes).
PLEASE NOTE

- To year 2002 majority of food law - Directives
- Since 2002 – Regulations are the most important.
Besides adopting the general food law (Regulation (EC) 178/2002) another three IMPORTANT REGULATIONS

Regulation (EC) 178/2002: general food law, EFSA, crisis management

- Regulation 882/2004: procedures official controls
- Regulation 852/2004: general hygiene rules for all feed and food products
- Regulation 853/2004: specific hygiene rules for food products of animal origin
178/2002 General Food Law

- 854/2004 Hygiene Obligatory HACCP GHP GMP
- 853/2004 Food animal origin
- 1331-34/2008 Food additives
- 1924/1925/2006 nutr.& health claims; suppl.
- 882/2004 Official Feed and Food Control
- 2073/2005 Microbiological Criteria
- 1881/2006 Food Contaminants
Food hazards and contaminants – “field to fork approach”
The Food Chain Perspective

- Soil science
- Envir. factors
- Pesticides
- Biolog. agents
- Fertilizers
- Agrochemicals

**Plant production**

**Microbial production**

**Animal production**

- Conventional
- Organic
- Vet. drugs
- Feed additives

- Storage
- Transport
- Safety operations
- Distribution
- Consumer

- Utility factors: Water, Steam, Air, Packaging, Buildings

- Nutritive value
- Information
- Sell-by date
- Training

- Ethical values

Traceability - Authenticity
ISSUES TO BE DEALED WITH IN THE CHAIN

TRACEABILITY: where from & where to?
Different purposes of „Traceability”

**IDENTIFICATION**
- Localization

**Traceability down**
- Logistic traceability

**Quality**

**Traceability up chain**
- Origin of product attributes
- Traceability
- Quality

**PRODUCT**

Traceability quality / availability – Traceability internal/external

Traceability « global » → N-1, N, N+1
Technology is just one of three T’s at work to create value for business and consumer safety in the food supply chain

- **Technology**
  - The need for better information in the chain is driving innovation and investment at all points in the chain
  - Data collection is critical – connectivity is the key value creation

- **Traceability**
  - Traceability – “zero tolerance for food safety” 1
  - Traceability can be used to create value and offset the cost of compliance – which we estimate to be half to one percent of the cost of goods

- **Transparency**
  - Value comes from sharing and efficiency among business partners
  - Successful chains are using transparency to achieve competitive advantage and improve margins
CHALLENGES FOR AGRI-FOOD SECTOR AND CONCLUSIONS

I. Convincing implementation of Farm-To-Table Approach

II. Functional Foods

III. Food Adulteration and Misbranding
On the basis of experience of almost 12 years period of Poland preparation to the accession to the EU it is recommended to consider:

- Implement a general principle, no single agency can be responsible for risk assessment, risk management, and risk communication.
- It is strongly recommended to abandon existing overlapping and scattered system of existing OFC agencies and start to consolidate food control labs (cost effectiveness).
- In the meantime – it is necessary to make delineation of responsibilities and better alignment of functions among agencies.

- To build up stepwise Agency for Official Food Control and prepare clear, concise Strategy for Agri-food Sector Development and Food Safety.
- System should be built on the basis of RISK ANALYSIS and cost effectiveness.
It is crucial also change in focus from product-specific standards (GOST) to a risk-based control system based on internationally-accepted food safety management systems what would relieve from burdensome requirements and costs (food operators responsibility).

Redesign stepwise inspection, monitoring and surveillance programs based on priority setting and cost effectiveness
AT LAST BUT NOT LEAST
FOOD SAFETY AND QUALITY

Agri - Food Sector

Food Law

EFSA Risk Analysis

OFFC

Three pillars of Food Safety Strategy
Food Safety and Quality
The only choice
Holistic approach
DZIĘKUJĘ ZA UWAGĘ

Thank you for your kind attention
# GOST vs. International Standards

<table>
<thead>
<tr>
<th></th>
<th>GOST</th>
<th>International standards</th>
</tr>
</thead>
<tbody>
<tr>
<td>Responsibility of food safety</td>
<td>Public sector</td>
<td>Private sector</td>
</tr>
<tr>
<td>Focus of control</td>
<td>Product ‘End-of-pipe’</td>
<td>Process ‘Chain’</td>
</tr>
<tr>
<td>Nature of requirements</td>
<td>Highly prescriptive and mandatory</td>
<td>Safety is mandatory</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Quality is voluntary</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Inconsistent procedures, methodologies, criteria</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Incompatible laboratory facilities, equipment and tests</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• GOST has many deficiencies for a market economy</td>
<td></td>
</tr>
</tbody>
</table>
Consolidation of food industry

*Poland*
- Meat industry declined from about 7,000 companies in 2001 to 3,000 in 2006
- Slaughterhouses from 2,600 to 1,200

*Bulgaria*
- Of 237 slaughterhouses in 1999, 144 were closed down by the middle of 2006. Only 22 of those remaining were fully in line with the EU requirements, 71 have been extended a transition period
- Out of the 312 meat processing operations in 1999, 146 were closed down by the end of 2006
- Out of 512 units in the milk industry in 1999, 341 were closed down by the middle of 2006

Cost for consumers may rise if informal markets are wiped out
Reform in **food safety** and ag health in EU accession programs

- **SAPARD investment agro-processing and marketing (2000-6)** for CEE
  - Equivalent to 2.5% of agricultural GDP annually for 7 years
- EU funds under PHARE for SPS-related activities (2000-2006)
  - **Poland:** €115 million (0.4% of ag GDP/year)
  - **Lithuania:** €24 million (0.8% of ag GDP/year)

It is no a cost of full adoption of EU *Acquis Communautaire*
Hierarchical definitions

**ALOP (WTO)**

**FSO (Codex)**
Food Safety Objective
The max frequency and/or concentration of a hazard in a food at the time of consumption that provides or contributes to the (ALOP)

**Performance Objective - PO (Codex)**
The maximum frequency and/or concentration of a hazard in a food at a specified step in the food chain before the time of consumption that provides or contributes to an FSO or ALOP, as applicable

**Performance Criterion - PC (Codex)**
The effect in frequency and/or concentration of a hazard in a food that must be achieved by the application of one or more control measures to provide or contribute to a PO or an FSO
Application of the FSO/PO concept

- Feed
- Milk
- Point of manufacture
- Point of purchase
- Point of further processing
- FSO
- Point of consumption
Fig. 2. Illustration of how Food safety control at a country level can link into Food Safety Management at the operational level through a Food Safety Objective set by a governmental competent authority on the basis of a public health goal (ALOP) established following the Risk Analysis framework.