IMPORTANCE OF FOOD SAFETY
The Concept

Food safety

Assurance that food will not cause harm to the consumer when it is prepared and/or eaten according to its intended use. FAO/OMS 1997.
The Concept

SAFETY ASSURANCE

- Set of conditions and measures taken during the food chain stages: production, processing, storage and distribution in order to ensure that, the product consumption does not represent a risk to the human health.
The Concept

- **HAZARD:**
a biological, chemical or physical agent, in, or condition of, food with the potential to cause an adverse health effect.

- **RISK:**
The probability of a hazard occurring.
Safety assurance programmes

- Objective: consumer protection by ensuring a safe and wholesome product whilst also minimizing the negative impact of production and processing practices, on the environment and on workers' health and maintaining market credibility.
Why is the concern regarding food safety arising?

- Need to provide consumer guarantee on the safety attributes of the product to be consumed.
- Gaining market access and market confidence regarding the safety of the products exported.
Rising awareness on food safety aspects and food borne diseases

**Worldwide:**

- 840 million people do not have access to quality food.
- 1.500 million of cases of diarrhea /year.
- Around 70% of the annual cases of diarrhea are caused by **biological contamination**.
Rising awareness on food safety aspects and food borne diseases.

In industrialized countries

- up to 30% of people suffer from food-borne illnesses every year.
Rising awareness on food safety aspects and food borne diseases.

In developing countries

It has been estimated that annually over 1,500 million children under the age of five years suffer from diarrhea and over 3 million die as a result (WHO, 1999a).
Incidence of food borne diseases in Latin America and the Caribbean Countries

Mortality rate * by diarrhea in children below 5 years:

0.13 (Trinidad & Tobago)
0.18 (Cuba)
9.83 (Nicaragua)

* per 1,000 inhabitants.

Total population: 475 millions.

Presentation 4.1
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The incidence of food-borne diseases may be 300 to 500 times higher than the number of reported cases worldwide.
Health effects of food borne diseases:

- Vomiting
- Gastroenteritis
- Diarrhea
- Non-intestinal disease, i.e. neurological conditions, pre-mature birth, and stillbirths

Food borne diseases substantially contribute to malnutrition.
Growing concern over food safety has increased dramatically in the last years.

Generating in the concept of

Food-borne Diseases
Why are the hazards and their associated risk increasing?

- Changes in the distribution systems.
- New products.
- New production and conservation technologies.
- New food types (pre-cooked food).
- Pathogens with different level of virulence.
- Introduction of new pathogens into geographical areas.
- Immunological changes among population segments.
- Global trade.
Hazards increase and associated risk increasing

- Are consumed as fresh cooked products (raw product, not pre-cooked)
- New exotic products coming into the market.
- Non lethal treatment for microbiological contamination.
- Increasing participation in the global trade.
Food world trade exceeds 400,000 millions dollars/year.

50% of food world exports are produced by developing countries.
The main importing markets are setting standards and regulations to assure food quality and safety throughout the food chain.
OBJECTIVE

IMPLEMENTING QUALITY & SAFETY ASSURANCE SYSTEMS

GUVERNMENTAL INITIATIVES

CONSUMER DEMAND
EUROPEAN UNION

Need for a food safety policy that:

- Recognizes the interrelations throughout the food chain.
- Monitors the risk associated to human health.
- Takes preventive actions to assess and prevent the risks.
- Involves an effective control system.

Governments in Industrialized countries are strongly working on it, an example, in 2002 the EU created the FOOD SAFETY AUTHORITY
USA

- **1997 CLINTON FOOD SAFETY INITIATIVE.**
- Regulations regarding Safety of Imported Food Shipments. 2002.
- Bioterrorism Act 2002-2003
IMPACT ON THE EXPORTING COUNTRIES ECONOMY

• **New Private and Public Standards and Regulations**

**Threat or opportunity?**
Food borne Disease Outbreaks Associated with Fresh Fruits and Vegetables

USA: 1973-1979 2% of food outbreaks were associated to FFV

USA: 1990-1997: 6% of food outbreaks were associated to FFV

Increase in consumption patterns results in increase of food-borne disease outbreaks associated to FFV
FOOD BORNE DISEASES ASSOCIATED WITH FRESH PRODUCES

USA: 1990-1998

Cabbage 5.2 %

Carrot 3.1 %

Tomato 2.1 %

Unidentified 7.3 %
OUTBREAKS IN FRESH FRUITS AND VEGETABLES

EEUU : 1990-1998

Imports 7.5 %

Unidentified 17.2 %
OUTBREAKS ASSOCIATED TO BACTERIAS

FRUITS AND VEGETABLES:
USA: 1988-1998

Shigella
3 % E.
coli 2 %
E. coli O11:H43 1 %
Campylobacter 2 %

B. Cereus 1 %
CHEMICAL HAZARDS ARE ALSO VERY IMPORTANT

• Pesticide residues have adverse effects on human health in the long run. They have less dramatic effects than those associated with microbiological contamination.
• Can cause cancer and birth defects and damage or interfere with the nervous, endocrine, reproductive and immune systems in mammals.
• Cause intoxications.
WHAT ELSE COULD THESE FOOD HAZARDS BE?
FOOD BORNE DISEASES IN USA

ECONOMIC COSTS /YEAR

6.5 - 33 MILLIONS OF CASES

• 6,000 - 9,000 DEATHS

• U$S 23 BILLIONS IN COST OF HEALTH ATTENTION AND OTHER ASSOCIATED COSTS.
FOOD BORNE DISEASES
ASSOCIATED COSTS

COSTS BORNE BY SOCIETY:

- Loss of Productivity.
- Cost associated with food borne disease outbreak investigation.
- Medical care services.

- Loss of revenue due to
FOOD BORNE DISEASES ASSOCIATED COSTS

- Loss of market access and credibility.
- Losses of foreign revenues for the exporting countries.
- Loss of competitiveness.

• For Exporters
FOOD BORNE DISEASES ASSOCIATED COSTS FOR THE INDUSTRY:

- Complaints and product rejections.
- Closure of business.
- Penalties.
- Disputes.
- Loss of prestige.
- Cost of corrective actions (investments)
Food Borne Diseases Associated Costs

For the Government:

- Epidemiological surveillance.
- Monitoring of emerging issues (new pathogens, high risk products, sensitive populations, Lab analysis, etc.)
ASSOCIATED COST TO FOOD BORNE DISEASES

FOR THE INDIVIDUAL:

- Costs of medical care.
- Missed work and lost wages.
- Travel to get care.
- Expenses for care.
- Chronic disease.
- Waste of time.
- Changes in consumer perception regarding the risk associated to product’s consumption.
• PRODUCT QUALITY LOSSES AND IN SOME CASES LOSS OF LIFE
GOVERNMENT RESPONSIBILITY

• Protection of human population from hazards in agricultural and food products that pose a threat to human health.

• Raising awareness of food chain actors and consumers aware on the importance of implementing safety assurance programmes.
RESPONSIBILITY OF THE DIFFERENT FOOD CHAIN ACTORS: PRODUCERS, EXPORTERS, ETC.

- Supplying safe and wholesome products.
- Consumer information regarding product characteristics and associated cost and benefits (transparent and clear information).
FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS (FAO)

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