

**Module 06    Lecture 03**

**Strategies for preventing  
foodborne illness**

# Food safety

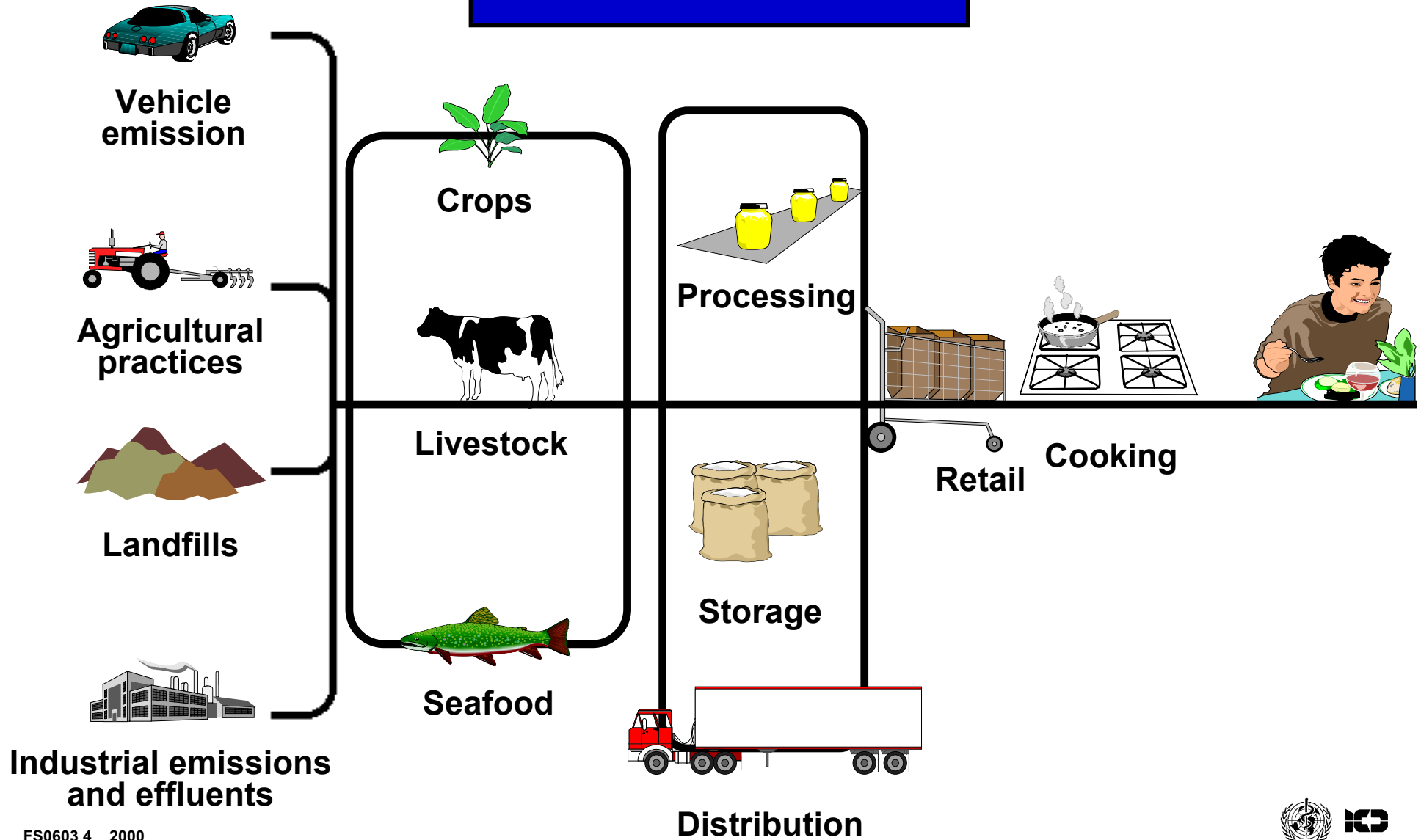
**Assurance that food will not cause harm  
to the consumer when it is prepared  
and/or eaten**

***according to its intended use***

# Food hygiene

**All conditions and measures necessary  
to ensure the safety and suitability  
of food at all stages  
of the food chain.**

# Food chain



# Food safety programme

## Health

- ◆ environmental health
- ◆ nutrition
- ◆ veterinary public health
- ◆ drugs

Agriculture

Commerce

Industry

Environment

Education

Tourism

Municipalities

Bureau of Standards

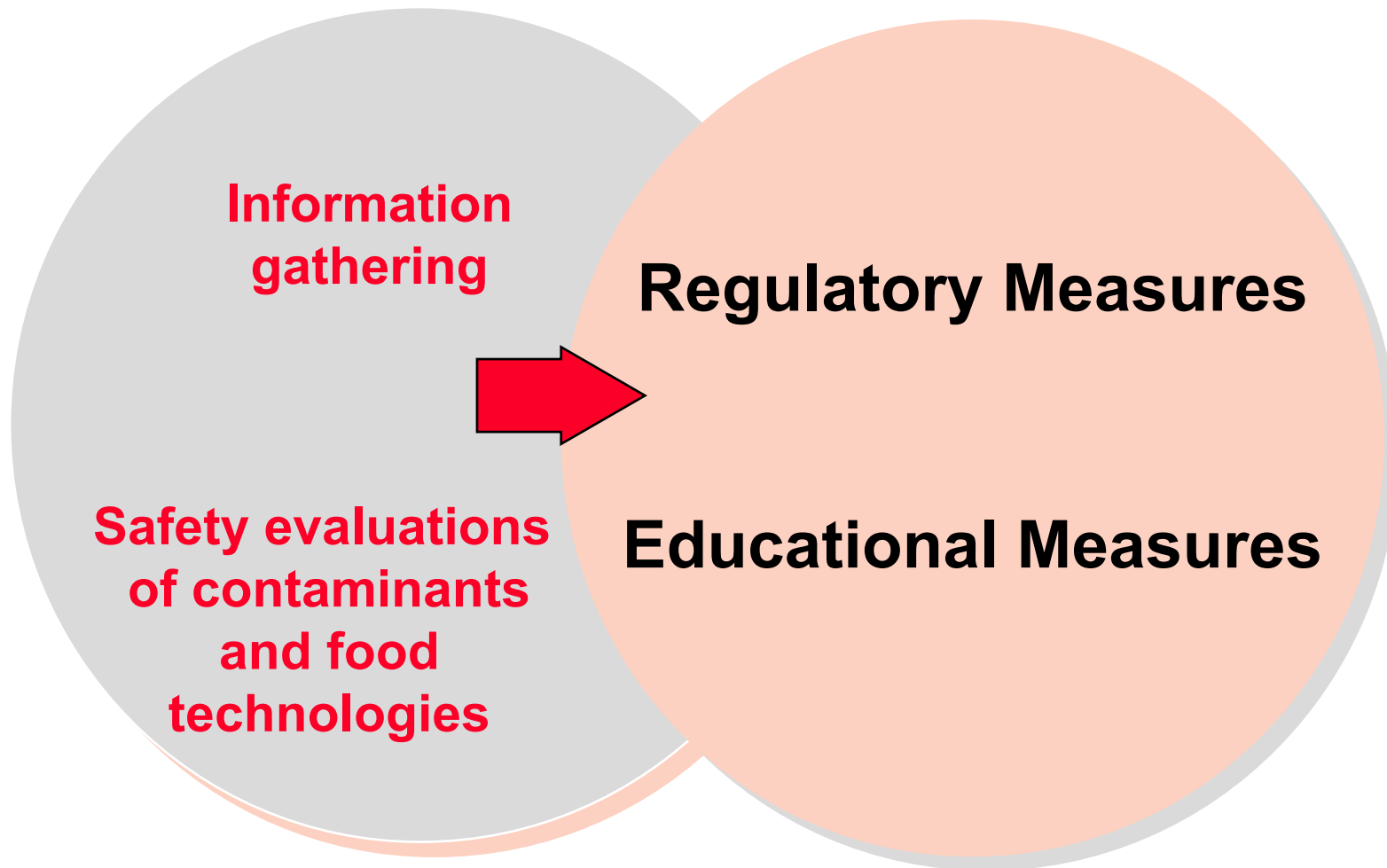
Planning

Finance

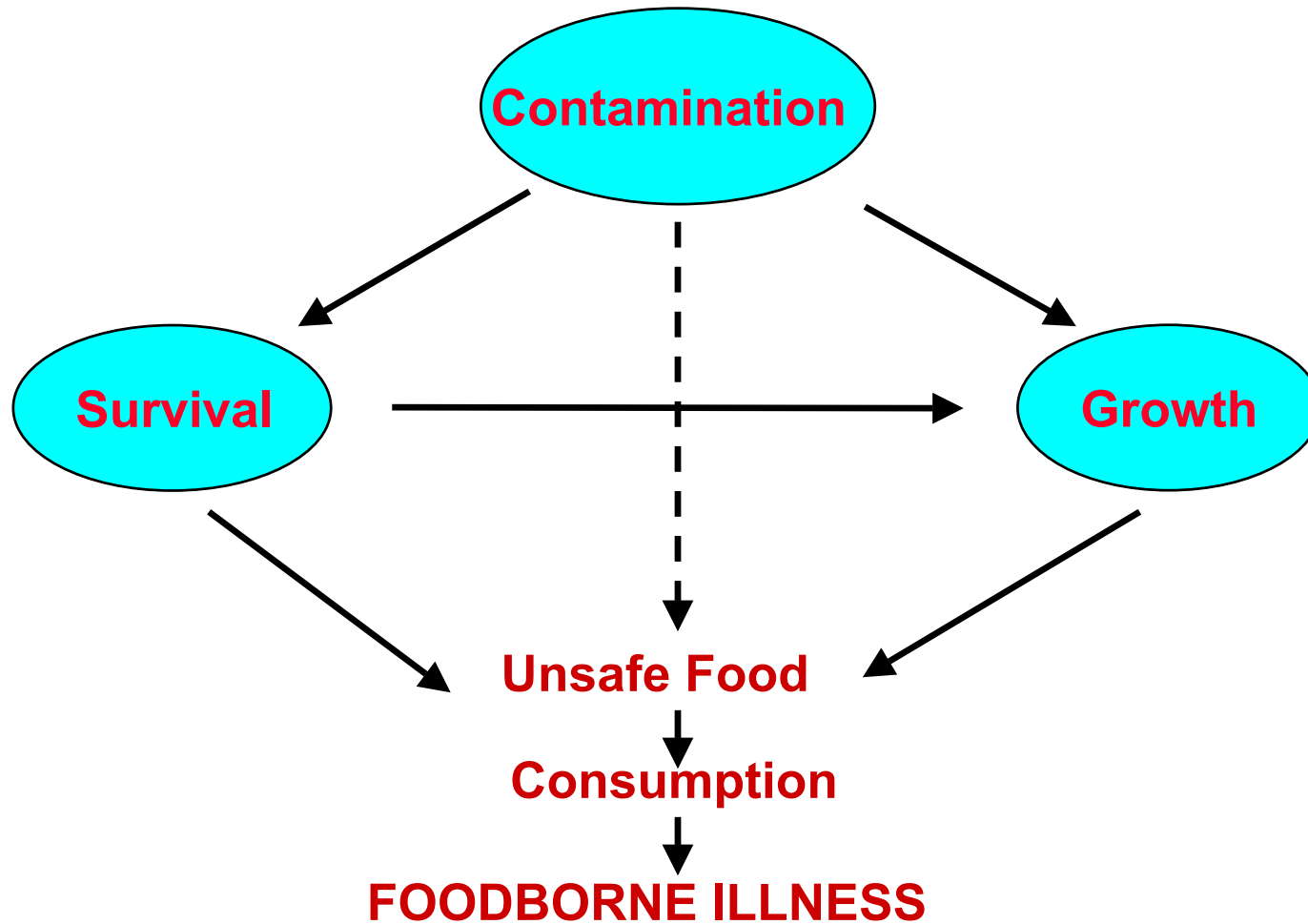
# **Objectives of a food safety programme**

**To prevent foodborne illnesses  
and  
to mitigate economic costs  
due to  
food contamination**



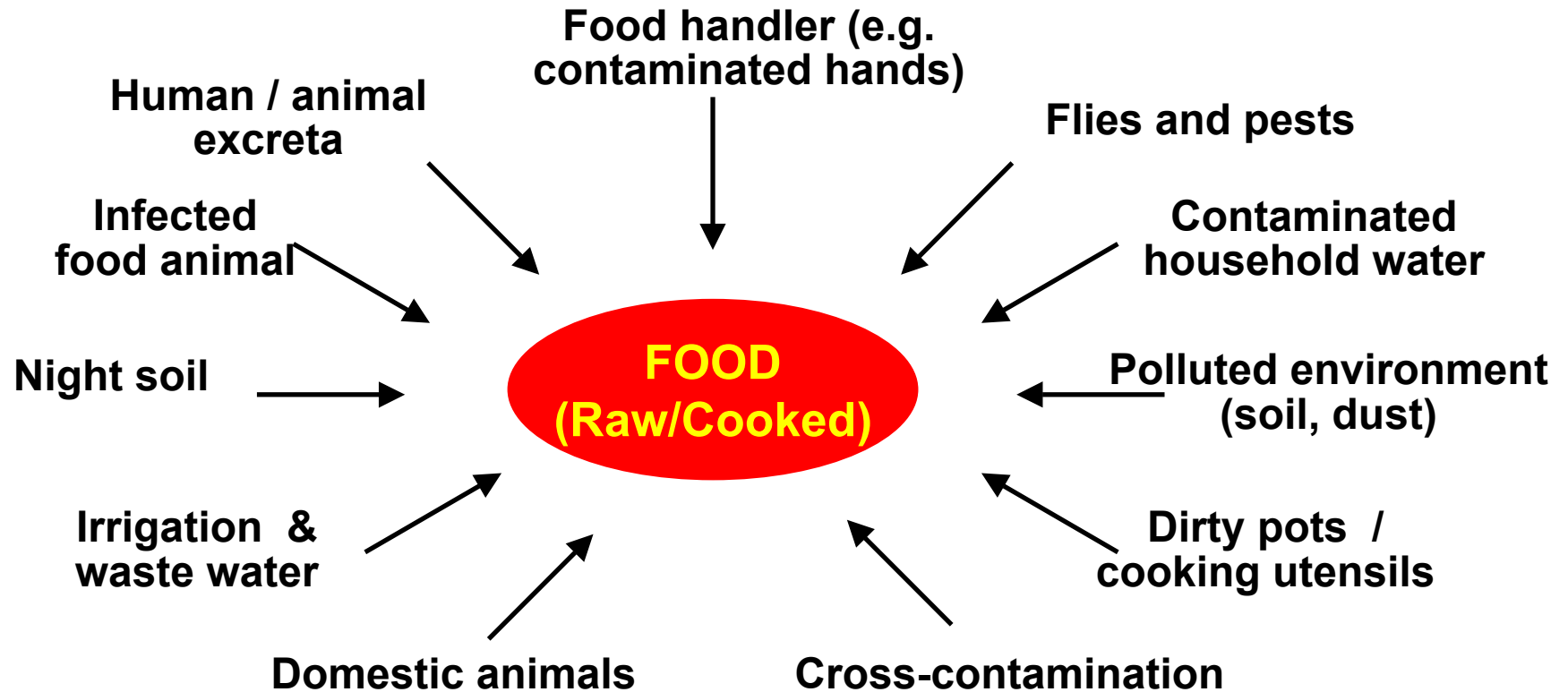


# Conditions leading to foodborne diseases

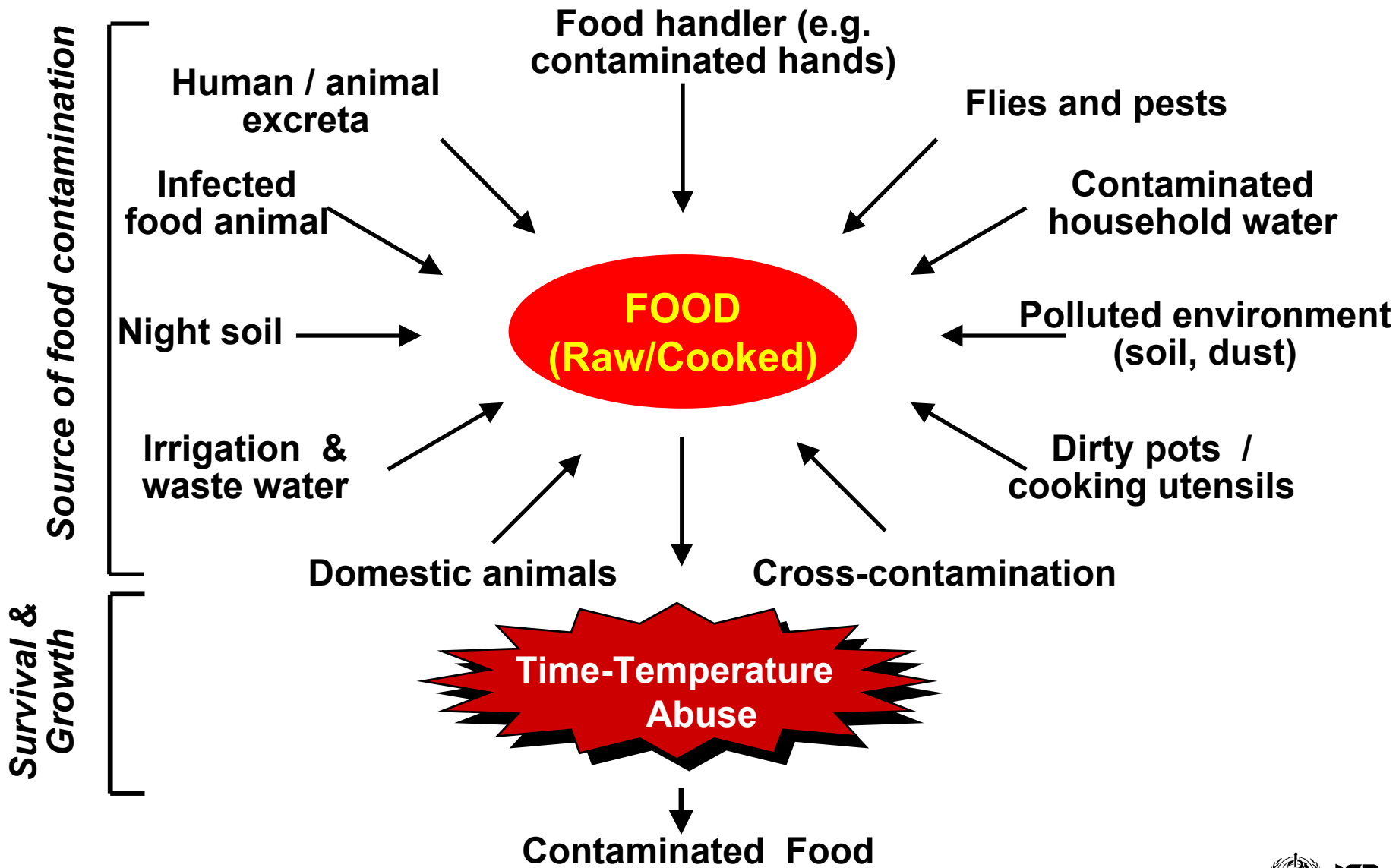


Source: Martin Adams , *Basic Food Safety*

# Contamination



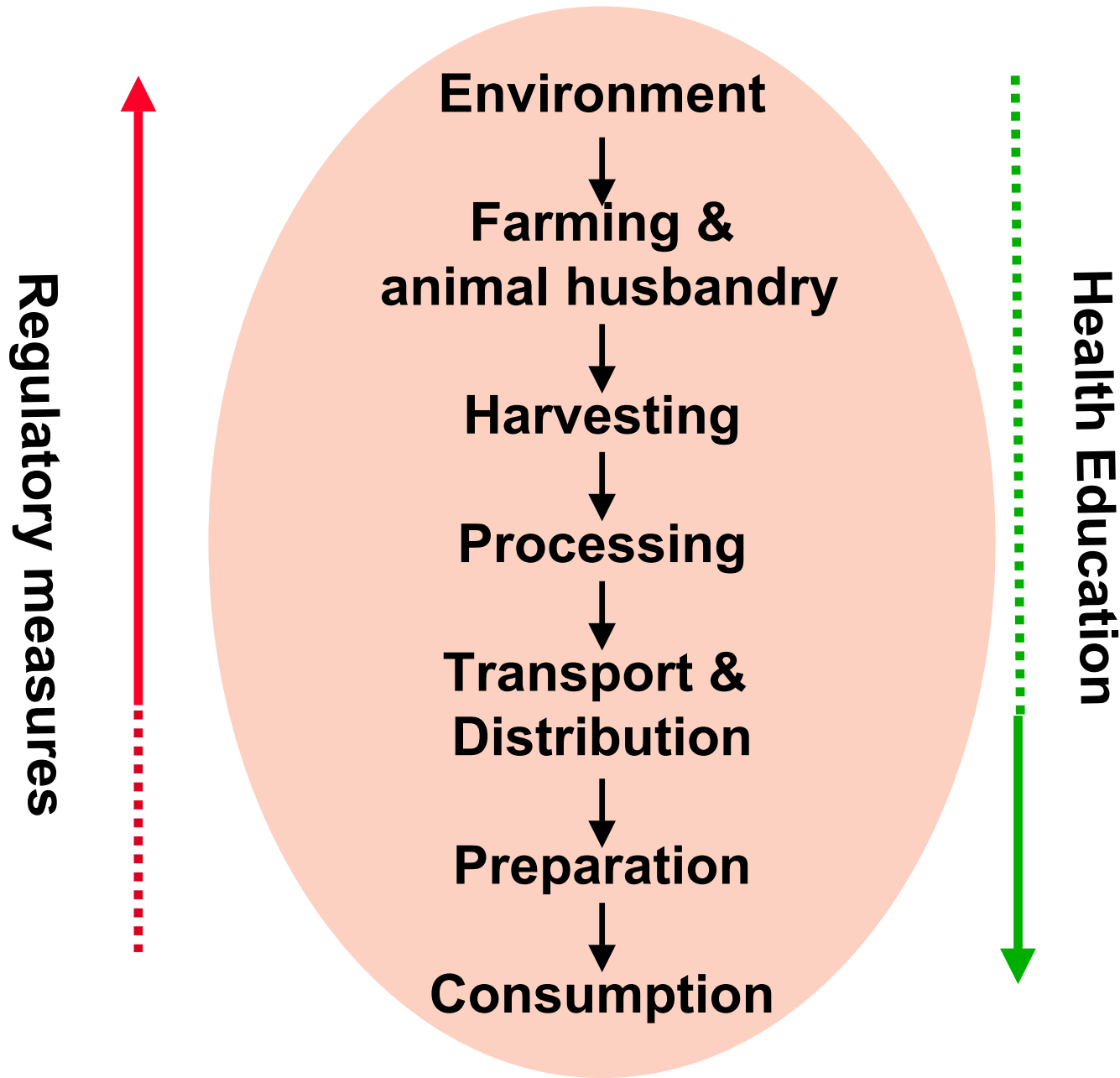
# Contamination



# Preventing foodborne illnesses

*Preventing foodborne illnesses involves*

- ◆ **preventing contamination (& adulteration)**
- ◆ **eliminating contaminants**
- ◆ **controlling growth (bacteria and mould)**



# Essential aspects of food safety legislation (1)

## Basic food law

- ◆ general basic principles

## *Regulations*

- ◆ detailed provisions for law enforcers, officers and those who have to comply with the law

# Essential aspects of food safety legislation (2)

## *Basic food law*

- ◆ prohibition of sale of contaminated or adulterated food
- ◆ prohibition of sale of food prepared, stored or distributed in non-hygienic conditions
- ◆ prohibition of food fraud

# Essential aspects of food safety legislation (3)

## *Basic food law*

- ◆ establishment of food standards
- ◆ registration of food establishments
- ◆ control of food imports
- ◆ control of food exports
- ◆ inspection activities
- ◆ laboratory evaluations
- ◆ penalties and sanctions

# Essential aspects of food safety legislation (4)

## *Regulations*

- ◆ labelling (date marking)
- ◆ packaging (date-marking)
- ◆ advertising
- ◆ pesticide residues
- ◆ veterinary drug residues
- ◆ food additives
- ◆ fortification of food

# Essential aspects of food safety legislation (5)

## *Regulations*

- ◆ Food hygiene
- ◆ Contaminants
- ◆ Food standards for:  
potable water / ice, beverages, milk & milk products, fats & oils, cereal & bakery products, fish & fishery products, meat & meat products, fruits & vegetables, and their products, food seasonings & flavourings, sugar & syrups, food for special dietary uses

# Effective compliance program

## *Mandatory compliance*

- ◆ inspection and laboratory testing

## *Voluntary compliance*

- ◆ government giving advice to industry

# Educational measures

## *Professional food handlers*

- ◆ restaurants
- ◆ catering establishments
- ◆ street food vendors

## *Domestic food handlers, particularly*

- ◆ households
- ◆ mothers of small children
- ◆ school children

## *Consumers, including travellers*

# FBD outbreaks by place where food was acquired/contaminated

*(Hungary 1990-92)*

<b>Restaurants</b>	<b>11 %</b>
<b>Canteens (schools, kindergartens, etc)</b>	<b>10 %</b>
<b>Private homes</b>	<b>66 %</b>
<b>Other</b>	<b>13 %</b>

# Foodborne disease outbreaks by place where food was acquired/contaminated France 1989-1992

*(France 1989-92)*

<b>Household</b>	<b>37 %</b>
<b>Restaurants</b>	<b>14 %</b>
<b>Canteens (schools, hospitals, factories)</b>	<b>30 %</b>
<b>Other</b>	<b>19 %</b>

# Foodborne disease outbreaks by contributing factors 1990-1992

<b>Inadequate storage</b>	<b>44 %</b>
<b>Inadequate cooking or reheating</b>	<b>9 %</b>
<b>Unsafe source</b>	<b>18 %</b>
<b>Contamination by an infected person</b>	<b>11 %</b>
<b>Contaminated equipment</b>	<b>4 %</b>
<b>Addition of toxic chemical or natural toxicant</b>	<b>2 %</b>
<b>Unknown</b>	<b>12 %</b>

# Foodborne diseases in your country

**What is the situation ?**

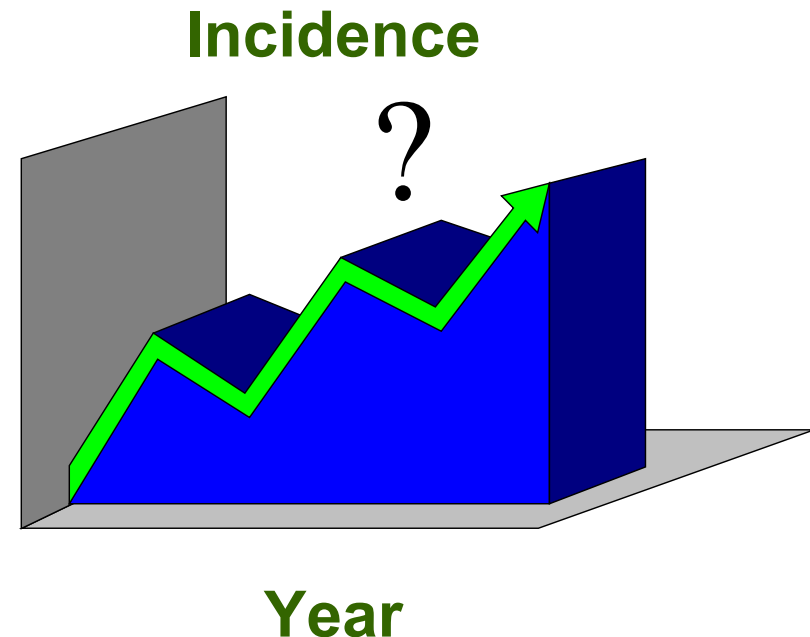
**What are the major  
problems?**

**Who are the victims?**

**What are the causes?**

**What kind of foods?**

**What kind of factors ?**



# Information gathering

- **Surveillance of foodborne diseases**
- **Monitoring contaminants**
- **Monitoring practices and underlying factors**
- **Monitoring infrastructure and monitoring the implementation of the programme**

# Surveillance and monitoring

## *Surveillance of foodborne diseases*

- ◆ notification of cases
- ◆ laboratory-confirmed cases
- ◆ outbreaks
- ◆ others

## *Monitoring contaminants*

- ◆ chemical contaminants
- ◆ biological contaminants
- ◆ naturally occurring toxins, e.g. biotoxins

# Surveillance and monitoring

## *Monitoring practices and underlying factors*

- ◆ practices (Does it?)
- ◆ knowledge and perception (Knows?)
- ◆ resources (Can?)
- ◆ motivation (Wants?)

## *Monitoring infrastructure*

- ◆ Human resources (partner)
- ◆ Demographic data
- ◆ Socio-cultural situation

# Safety evaluations of contaminant and food technologies

## *Contaminants*

- ◆ chemical hazards
- ◆ biological hazards
- ◆ naturally occurring toxicants

## *Technologies, e.g.*

- ◆ genetically modified organisms
- ◆ packaging, etc.

# Shared responsibility

## *Intersectional collaboration*

- ◆ **government**
- ◆ **industry (primary as well as processing and manufacturing industry)**
- ◆ **food handlers and consumers**

# Safe food for all

*Shared Responsibility*

**Government**

**Industry**

**Consumer**

**National Commitment to food safety**

**WHO Leadership food safety**

**Science, Research and Development**

# Role of government

- **Food legislation and enforcement**
- **Advice for industry and trade**
- **Education of consumer**
- **Information gathering**
- **Provision of health-related services**

# Role of industry

- **Compliance with good agricultural and manufacturing practices**
- **Quality assurance programme (HACCP)**
- **Qualified personnel: trained managers and food handlers**
- **Informative labelling and consumer education**

# Consumers and food handlers

- **Hygienic handling of food**
- **Discriminating and selective**
- **Community participation**
- **Active consumer groups**