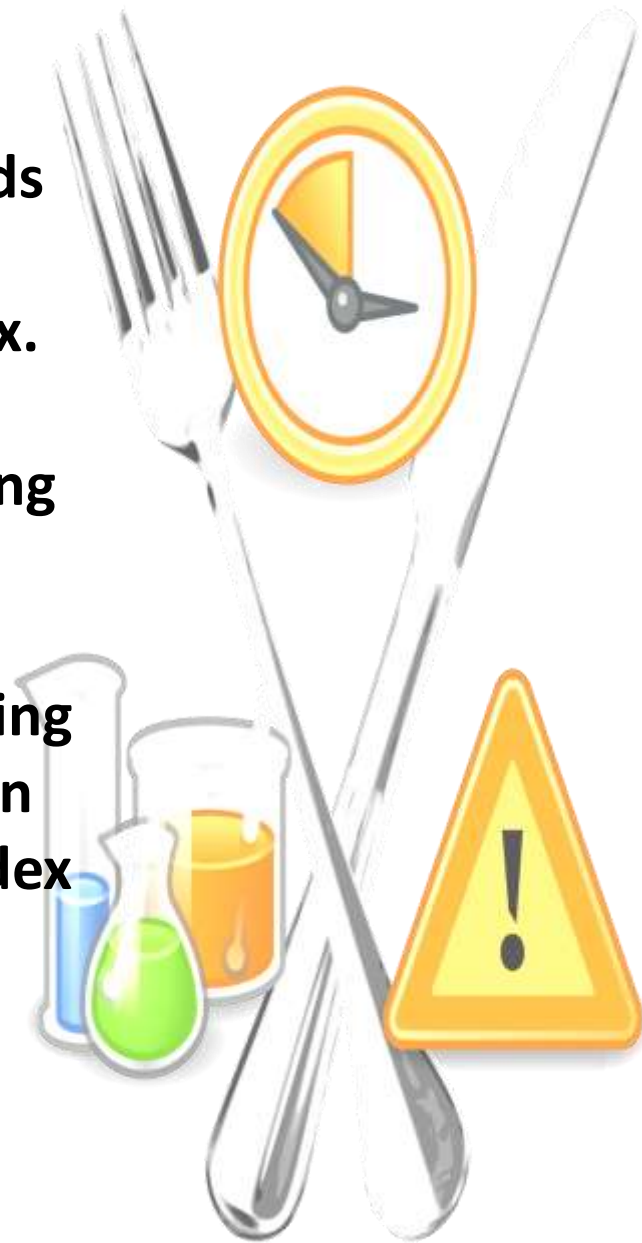


Global quality and food safety standards: an overview



Safe & Nutritious Food
A Shared Responsibility

- ❑ Ministry of Health and Family Welfare has primary responsibility for determination of government policy relating to food standards and enforcement of food control including national position on issues relating to Codex.
- ❑ With global food industry, national food legislation is aligned with Codex, encouraging innovation and facilitating trade without compromising consumer safety.
- ❑ Domestic and international industry is looking forward to FSSAI for harmonization of Indian food standards for food categories with Codex Alimentarius Commission standards.
- ❑ CAC is regarded as **'World Authority' on food standards** (Joint FAO/ WHO Food Standard Programme).





- ❑ **Codex's focused objectives:**
 - **Protecting consumers**
 - **Facilitating trade are shared by member countries and its standards based on scientific evidence**
 - **Risk analysis principles are followed and/or adopted partially or in totality by countries around world.**
- ❑ **WTO in its Sanitary and Phytosanitary (SPS) Agreement recognizes Codex standards as global reference standards for consumers, food producers, processors, national food control agencies involved in international food trade.**
- ❑ **Agreement on Application of SPS Measures and Agreement on Technical Barriers to Trade (TBT) also encourage international harmonization of food standards.**

Setting Public Health Goals

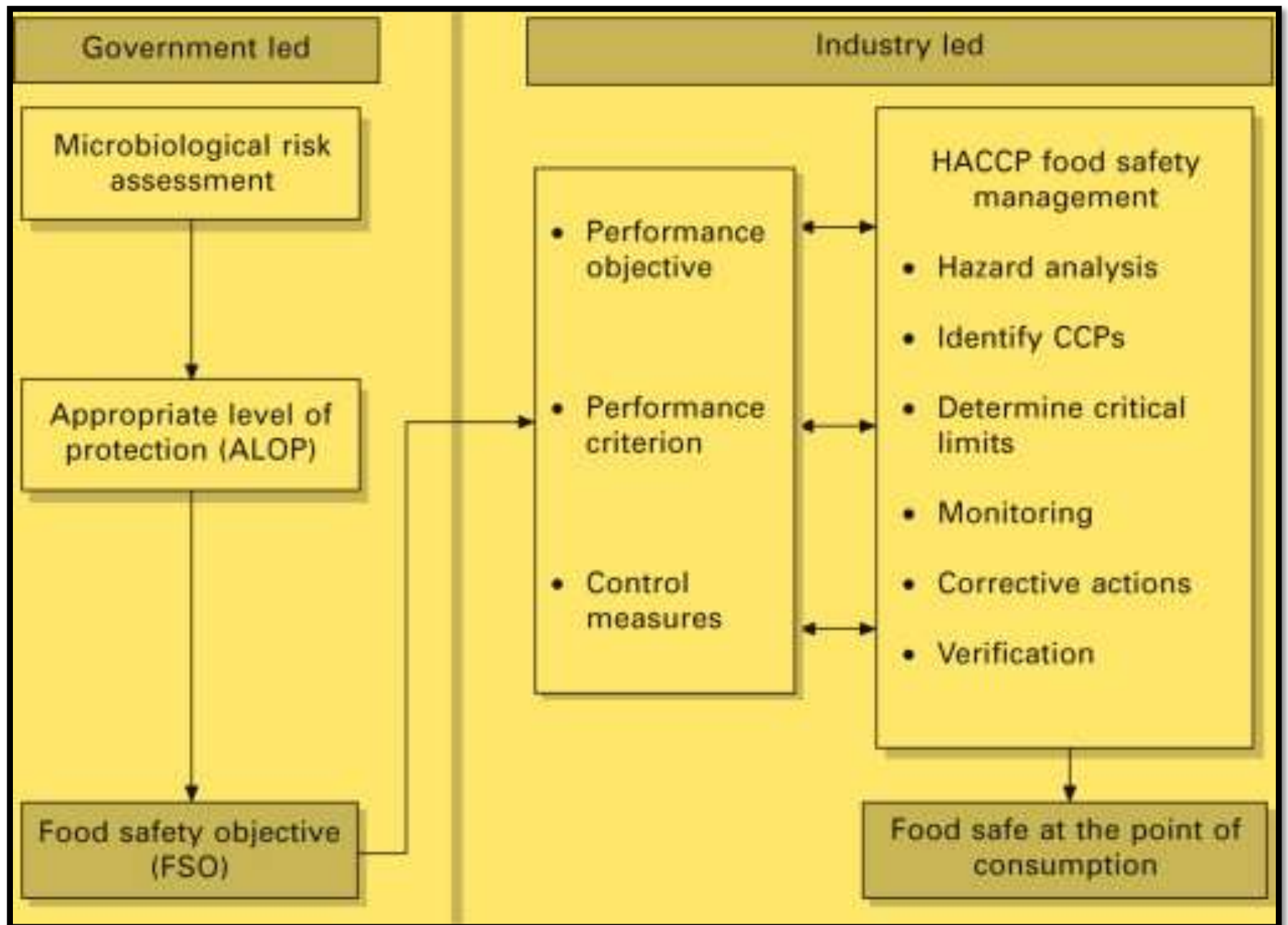
Concept of appropriate level of protection

- Increased interest in developing tools to requirements of food safety programs with their expected public health impact.
- An appropriate level of protection (ALOP), expressed in terms of desired reduction in current level of risk is defined as food safety goal.
- ALOP defined as ‘statement of degree of public health protection that is to be achieved by the food safety system’. May be in terms of probability of an adverse public health consequence or incidence of disease (number of cases per 1,00,000 populations per year).
- FSO defined as ‘maximum frequency and/or concentration of microbiological hazard in food at time of consumption that provides an appropriate level of protection’. This ALOP has also been called ‘acceptable level of risk’ (ALR).

- This term is similar to 'tolerable level of risk' (TLR) preferred by ICMSF, because it recognizes that risks related to consumption of food are seldom accepted, but at best tolerated.
- One of tasks of governmental risk managers is thus to decide upon what is adequate, appropriate or tolerable in terms of food safety or health risk.

How they have to do this is not described in detail by WTO or Codex.

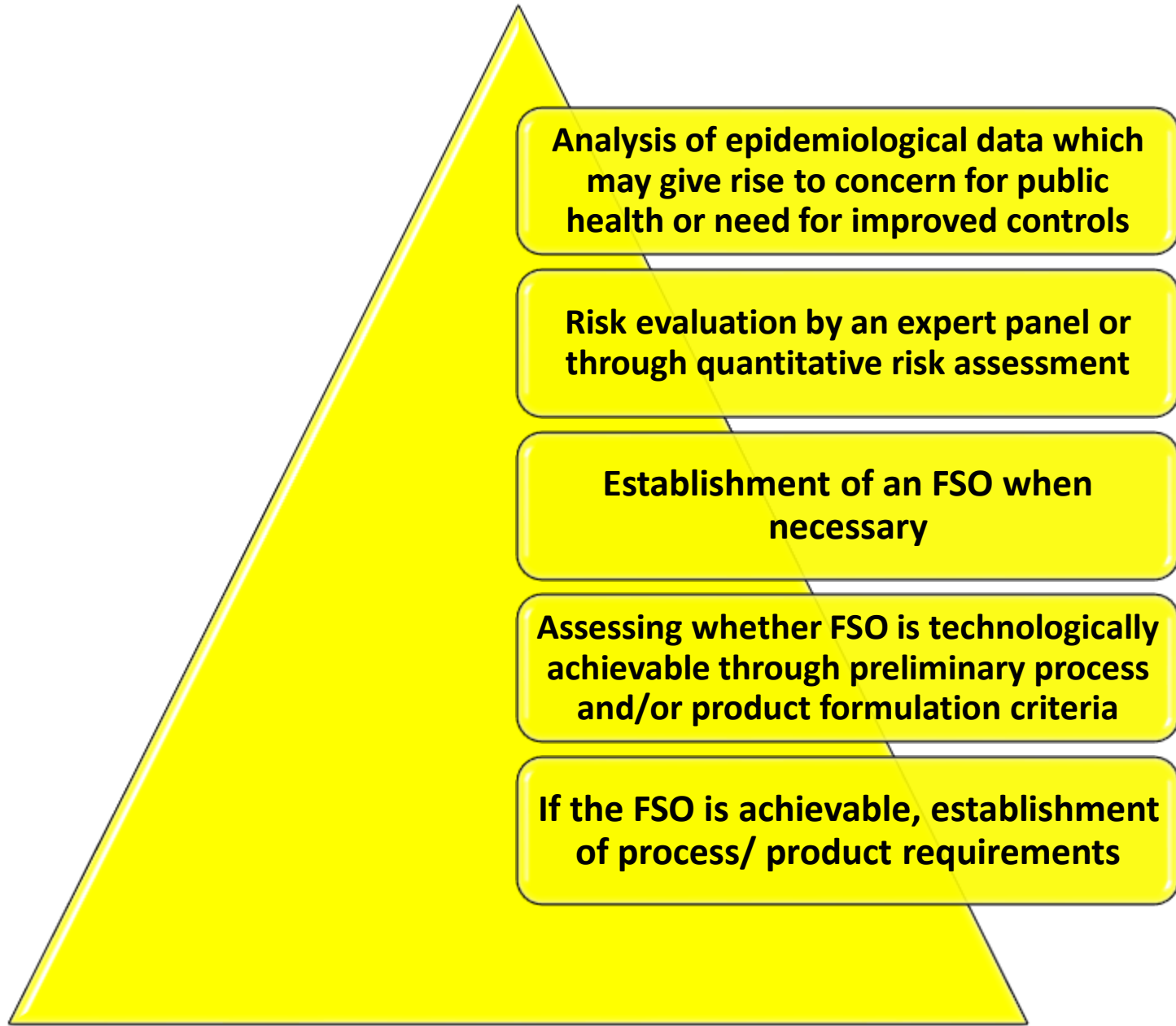
- Determination of ALOP/TLR should be science based, should include economic and social factors and should minimize negative trade effects.



Concept of Risk Analysis

- Risk analysis and its component parts (risk assessment, risk management and risk communication) is used as tool in evaluating and controlling microbiological hazards.
- Risk-management based approach is required to ensure consumer protection and facilitate fair practices in food trade.
- This approach may employ microbiological risk assessment and utilize spectrum of risk communication products including guidance documents, codes of hygiene practice, food safety objectives and microbiological criteria.
- General guidelines used to manage pathogens in foods have been described by ICMSF (2002), indicating respective roles of industry and government.





Analysis of epidemiological data which may give rise to concern for public health or need for improved controls

Risk evaluation by an expert panel or through quantitative risk assessment

Establishment of an FSO when necessary

Assessing whether FSO is technologically achievable through preliminary process and/or product formulation criteria

If the FSO is achievable, establishment of process/ product requirements

Risk assessment

- Risk assessment is characterization and estimation of potential adverse health effects associated with exposure of individuals/populations to hazardous materials/situations.
- Risk assessment of microbiological hazards in foods has been identified as a priority area of work by CAC.
- Risk assessment for microbiological hazards in foods is defined as scientifically based process consisting of four components: **hazard identification, exposure assessment, hazard characterization and risk characterization.**

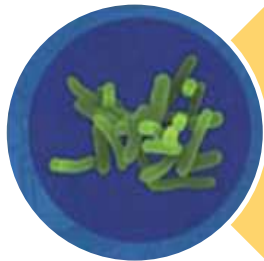




Qualitative process intended to identify microorganisms/microbial toxins of concern in food or water. Include information on hazard of concern and clinical and surveillance data



Provide an estimate with associated uncertainty of occurrence and level of pathogen in specified portion of food at time of consumption



Hazard characterization provides a description of the adverse health effects that may result from ingestion of a microorganism



Integration of 3 previous steps to obtain risk estimate (an estimate of likelihood and severity of adverse health effects that would occur in given population with associated uncertainties)



Goal of risk assessment may be to provide an estimate of level of illness from a pathogen in a given population, but may also be limited to evaluation of one or several step(s) in a food production or processing system

Risk management

- Process, distinct from risk assessment, of weighing policy alternatives in consultation with interested parties, considering risk assessment and other factors relevant for health protection of consumers and promotion of fair trade practices.



RISK COMMUNICATION

- **Interactive exchange of information and opinions throughout risk analysis process concerning risk, risk-related factors and risk perceptions, among risk assessors, risk managers, consumers, industry, academic community, including explanation of risk assessment findings and basis of risk management decisions.**



Codex Alimentarius Commission

- CAC is body of United Nations (UN) established by FAO (1961).
- Inter-governmental organization that coordinates food standards at international level.
- **Objectives:** Protect health of consumers and ensure fair practices in food trade.
- CAC has proved to be successful in achieving international harmonization in food quality and safety requirements. Formulated international standards for wide range of food products and specific requirements covering pesticide residues, food additives, veterinary drug residues, hygiene, food contaminants, labelling, etc.
- Codex recommendations are used by governments to determine and refine policies and programmes under their national food control system.
- Codex work has created worldwide awareness of food safety, quality and consumer protection issues and achieved international consensus on how to deal with them scientifically through risk-based approach.
- Quality assurance systems is focal point for inclusion in work of Codex.
- Principal consideration behind development of any Codex standard, guideline or other recommendation is **protection of consumer's health.**

HACCP System

- HACCP stands for **Hazard Analysis Critical Control Point**.
- **Systematic approach to identification, evaluation and control of food safety hazards.**
- **Proactive strategy where hazards are identified and assessed, and control measures are developed to prevent, reduce/eliminate hazard.**
- **HACCP system is science based and systematic, identifies specific hazards and measures for their control to ensure safety of food.**
- **HACCP can be applied throughout food chain from primary production to final consumption and its implementation should be guided by scientific evidence of risks to human health.**
- **Application of HACCP systems promote international trade by increasing confidence in food safety.**
- **Application of HACCP is compatible with implementation of quality management systems (ISO 9000 series) and choice in management of food safety within such systems.**

H A C C P



Danger to health

Danger to health



Investigation of the hazard

Investigation of the hazard



Crucial for containment

Crucial for containment



Handling of conditions

Handling of conditions



Position in the process

Position in the process



Hazard



Analysis



Critical



Control



Points

Management Systems for Quality and Food Safety

- ❖ ISO 9000 encompasses all activities of company to ensure that it meets its quality objectives while HACCP is directed towards ensuring food safety.
- ❖ ISO 9000 standards were brought by International Organization for Standardization (ISO) and HACCP standards by CAC.
- ❖ As global market has become more demanding in terms of quality, safety and timely delivery, installation of ISO 9000 Quality Management System and HACCP by food industry is essential for getting competitive international edge.
- ❖ Food Safety Programs need to be implemented to meet regulatory requirements, retailer/manufacturer's requirements.
- ❖ **ISO 9000 Quality Management Systems: ISO 9000 system is a system with minimum quality requirements. Builds baseline system for managing quality.**

