



**Food
Standards
Agency**
food.gov.uk



**Food
Standards
Agency**
food.gov.uk

“The identification of future food safety risks”

**Challenging boundaries in risk assessment –
sharing experiences**

**Terry Donohoe
Food Standards Agency UK
7th/ 8th November 2012**



Mandate of EFSA on Emerging Risks

REGULATION (EC) No 178/2002 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 28 January 2002

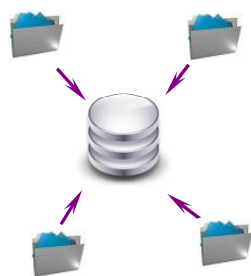
Laying down the general principles and requirements of food law, establishing the European Food Safety Authority and laying down procedures in matters of food safety

Article 34

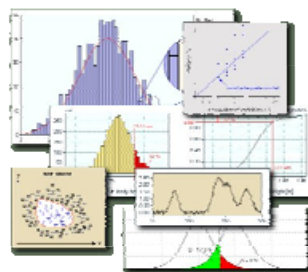
Identification of emerging risks

1. The Authority shall establish **monitoring** procedures for systematic searching for, **collecting**, **collating** and **analysing** information and data **with a view to the identification of emerging risks** in the fields within its mission.

Collecting and collating



Analyse and filter



sharing

A short history on the development of an approach

- EMRISK Project, 2006 (procurement)
- Scientific Committee Opinion, 2006
- EFSA Definition of “Emerging Risk”, 2007 (Scientific Committee)
- **Establishment of the EMRISK unit, 2007-8**
- ESCO WG on Emerging Risks, 2009
- EMRISK Technical Report on the Emerging Risks 2010
- EFSA Colloquium on Emerging Risks 2010
- **Networks with MS and Stakeholders established 2010**
- Working Group on data sources for emerging risk identification, (July 2011)
- WG on Methodology for emerging risk identification (Feb 2012) – criteria for analysing potential signals of emerging risks.
- **Report on the outcome of the pilot phase (July 2012)**

FSA Strategy for 2010-2015



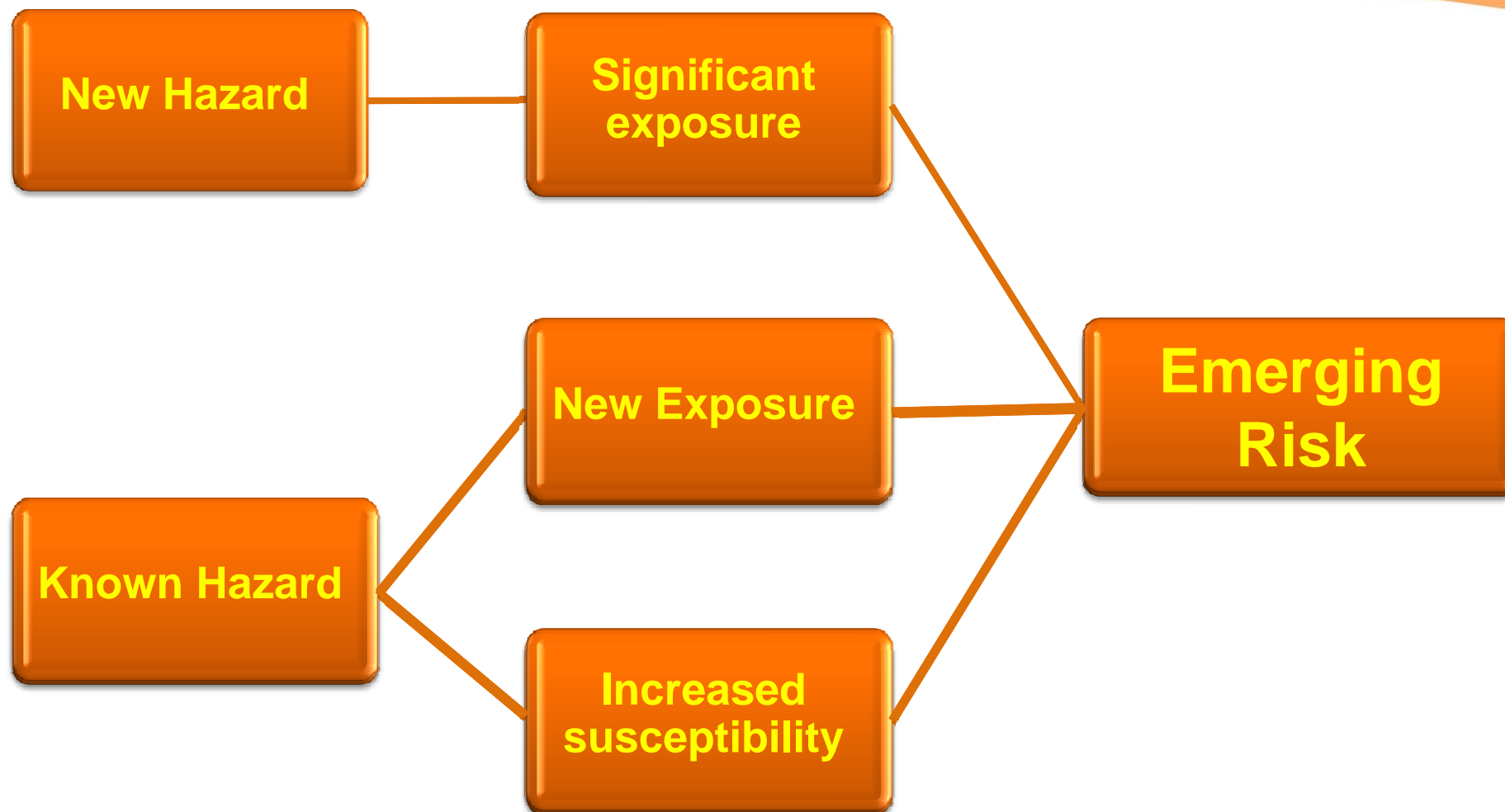
Outcome: “foods produced or sold in the UK are safe to eat”

Main Priority

*“increase horizon scanning and improve forensic knowledge, and intelligence on, global food chains to identify and reduce the impact of potential **new and re-emerging risks**”*



Definition of Emerging Risk



ESFA, 2007. Definition and description of « emerging risks » within the EFSA's mandate. Statement of the Scientific Committee, 10 July 2007.

Definitions

- **Emerging Risk:** a new and unexpected hazard or threat
- **Re-emerging Risk:** a known hazard or threat which is increasing in frequency of occurrence or severity

Programme Outputs

- Early warning system for new and re-emerging risks
- Intelligence-led sampling plans supporting enforcement activities
- Targeted research and surveillance activities to fill gaps in our food safety knowledge
- Support to policy making in the UK and across the EU

Develop our understanding of when, why and how incidents occur to enable effective interventions to prevent future food safety issues

- i) Clear **targeted issues/topics** should be agreed prior to the selection of sources of information to be monitored;
- ii) EFSA should fully benefit from the **existing knowledge**, networks and databases available internally, and establish multilateral agreements with member states and inter-governmental agencies to share information;
- iii) When **interpreting and filtering** the information a **multidisciplinary approach** is strongly advisable in order to interconnect data in a broad context;
- iv) The use of **creative methods** (e.g. scenarios building) in combination with quantitative empirical data and expert judgment should be used;
- v) When **communicating with risk managers** on emerging risks the terminology used and the assessment provided should be proportionate to emerging issues identified, **avoiding overload of information and unnecessary scares**;

Successful detection of Emerging Risks requires...

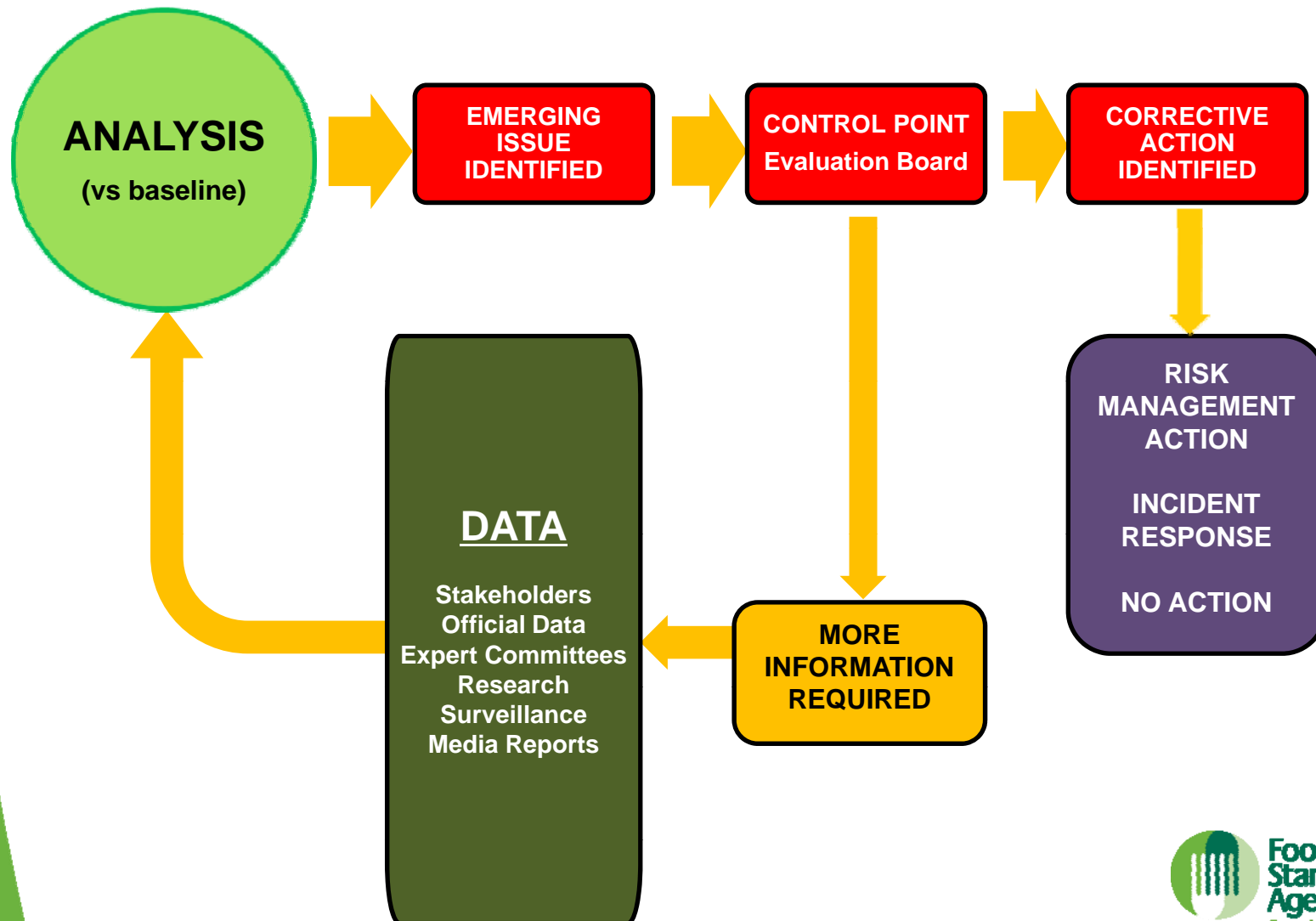
A protocol
(framework)

An Intelligence Strategy
(where & how to look)

Reliable Data Sources
(intelligence)

Skilled human intervention
(know how & common sense)

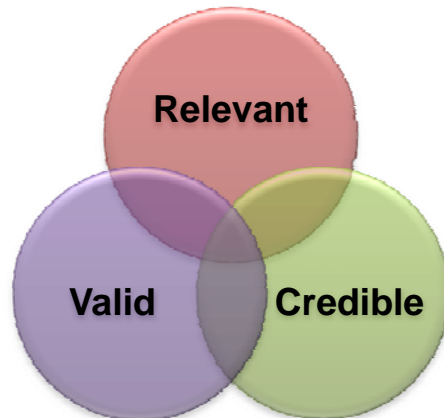
Emerging Risks detection



Where does the information come from?

Stakeholders
Official Data
Expert Committees
Research
Surveillance
Media Reports

“Whistleblowers”
Local Authorities
Border Inspection Points
Police
Industry Consultative Forums
Government Organisations
European Member States
European Commission
EFSA ER Exchange Network
International Liaison



Emerging Risks Consultative Forum (ERCF)

Expert Consultation Group representing UK Industry & Enforcement on matters of potential emerging food safety risks

Principal Purpose:

To provide a discussion forum for the two-way exchange of information to inform the emerging risks programme

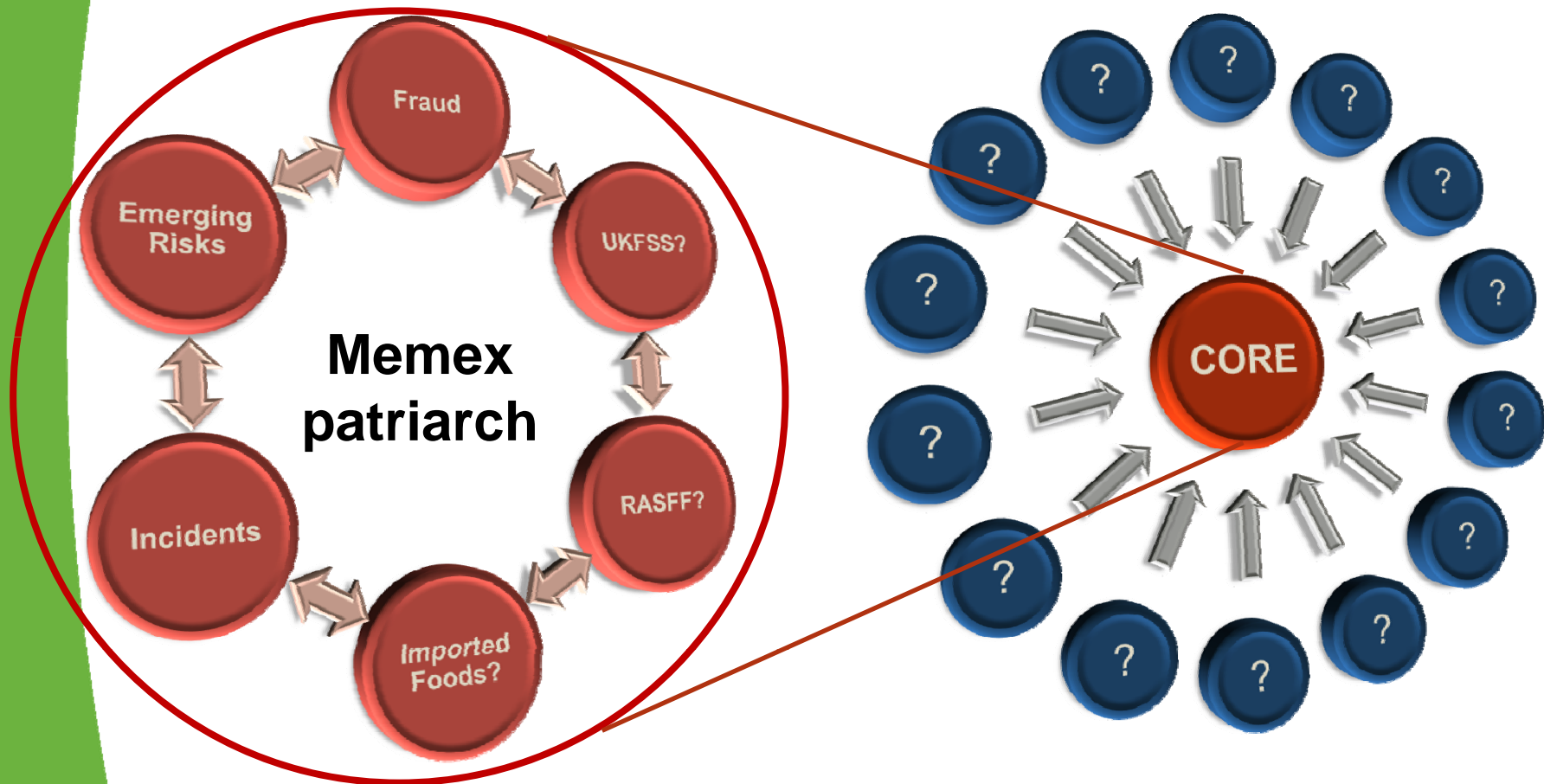
Emerging Risks Exchange Network (EREN)



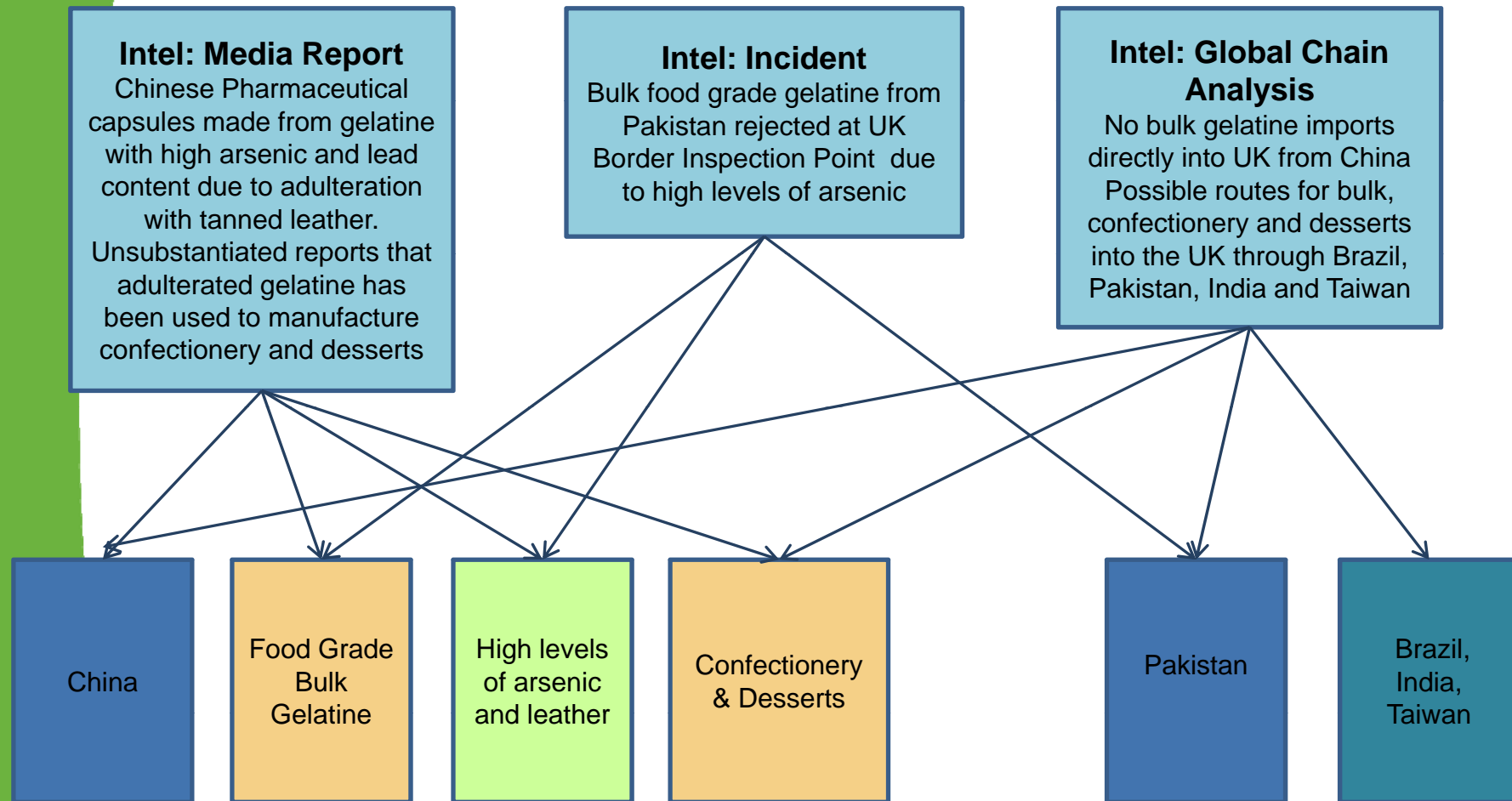
Objectives

- Principal body for exchanging information on ER's between EFSA, MS's, EU Commission and international organisations
- Network consists of national experts on ER identification
- Exchange of information includes ER intelligence and the identification activities of MS's
- Facilitate the access to and exchange of relevant databases

Intelligence System



Linking Intelligence via Memex



Evaluation Board

1. Is this an emerging issue?
2. Does this issue require:
 - (i) escalation to incident level,
 - (ii) policy intervention,
 - (iii) further investigation or,
 - (iv) a watching brief?
3. What is the specific recommendation from the Evaluation Board?

Assessing Emerging Risks



Conclusions and recommendations of the WG on Emerging Risks Methodology



- Building on past experience, an updated methodological framework to be implemented in 2013:
 - (i) identification of priority emerging issues, via exchange of information with **relevant organisations** and/or through **expert consultation** approaches;
 - (ii) identification of data sources and data collection through additional data search in EFSA, and through mobilisation of external data retrieved via **Member States, European Institutions and Stakeholders**;
 - (iii) Final evaluation to identify emerging risks and **suggest possible actions**.

Considerations

What is typical?

(a baseline)

What is exceptional?

(identify unusual or abnormal events)

What don't we know?

(analyse our global food chains)



WHAT IS TYPICAL?

(A BASELINE)

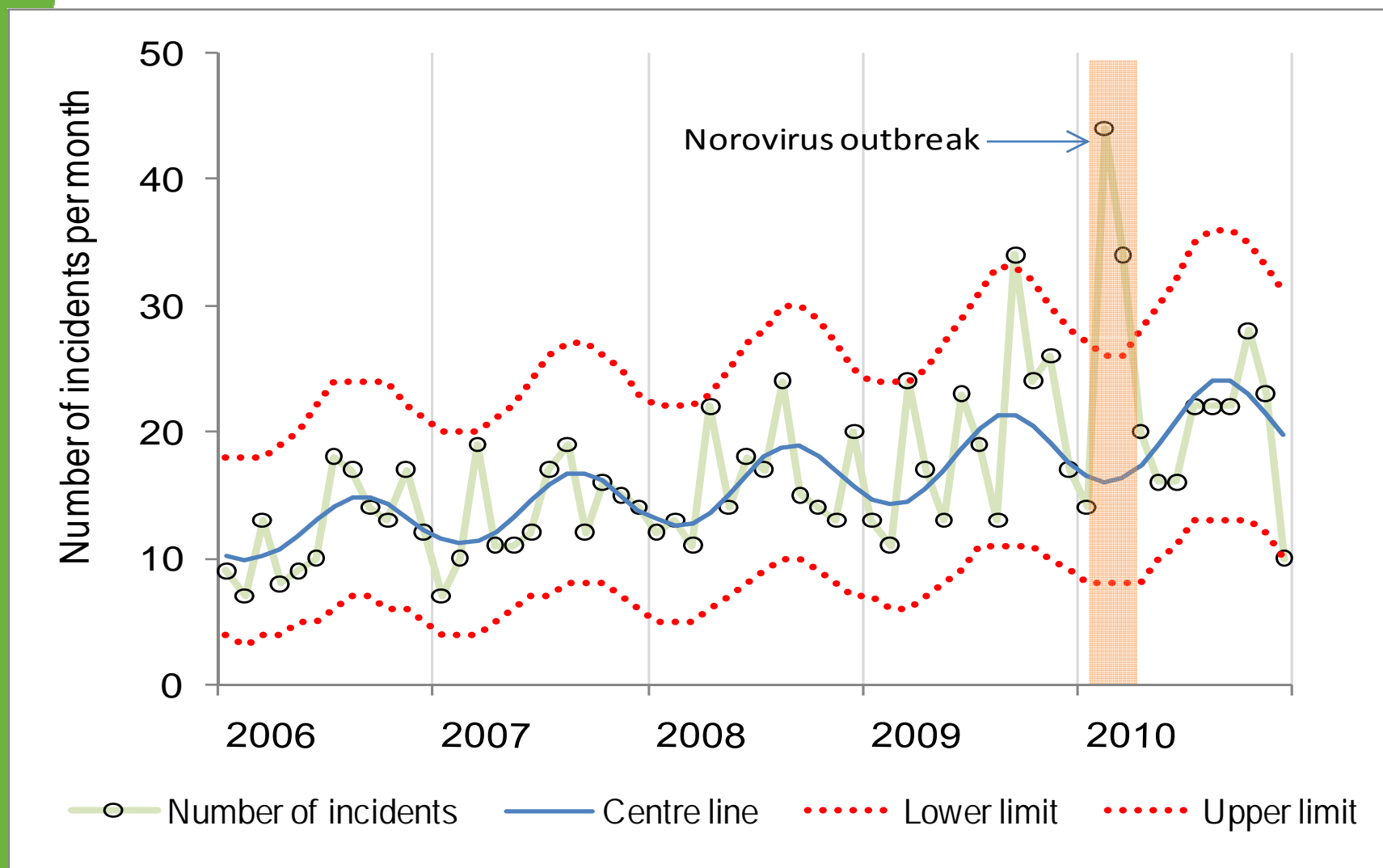


- Outbreaks of *Escherichia coli* (STEC) O104 in Germany & France linked to sprouting fenugreek seeds
- Emergence of Schmallenberg disease
- Dioxins in poultry and pig feed from Germany
- Outbreak of botulism in Scotland linked to ambient products
- Implications of the Japanese Tsunami & Fukushima meltdown upon UK imports
- *Salmonella* spp. in onion powder from Egypt
- Outbreak of *Escherichia coli* O157 PT8 linked to vegetable handling
- *Salmonella* “Newport” in watermelons
- Unauthorised use of pesticides in Indian Okra
- *Salmonella* spp. in Paan Leaves from Bangladesh

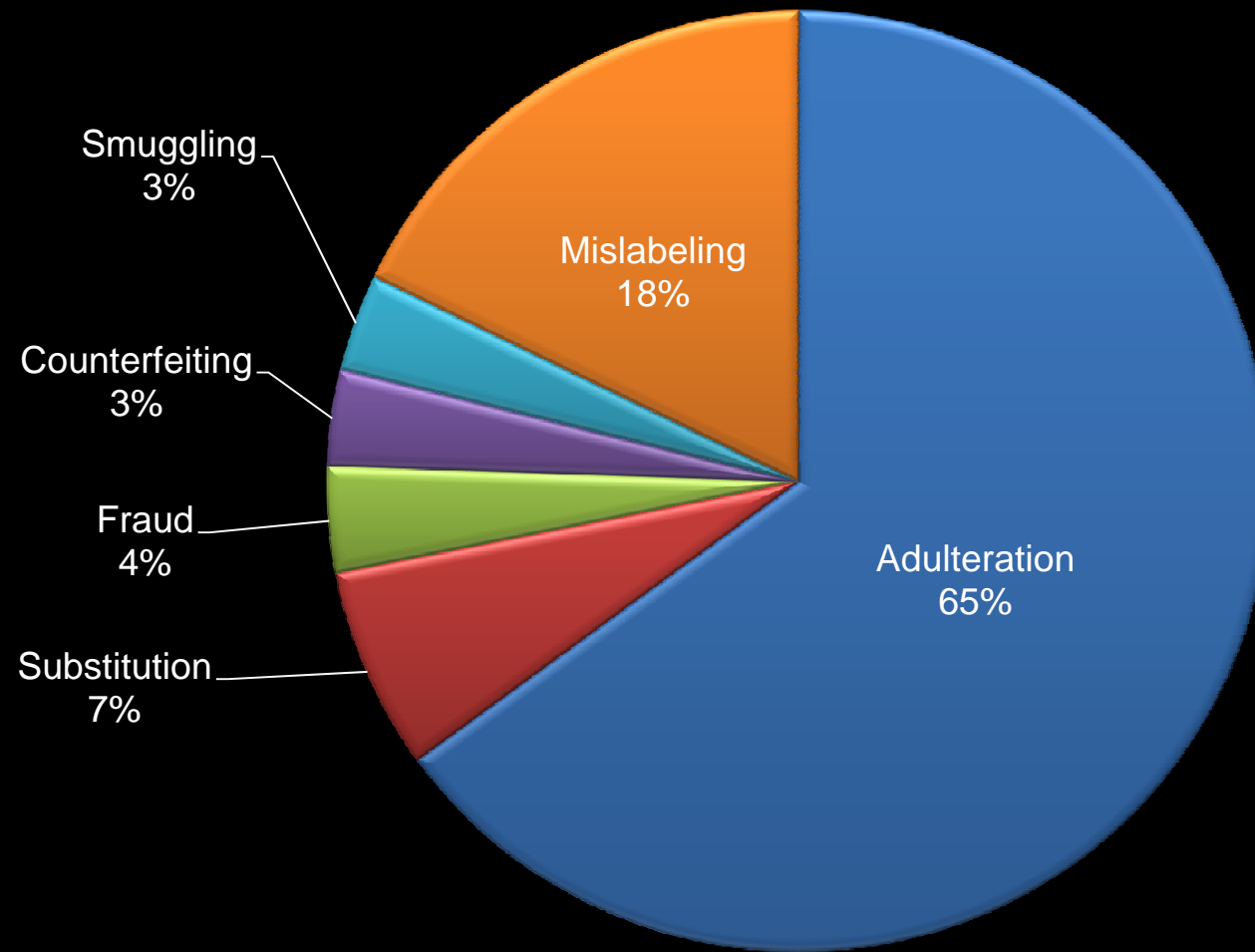


Control Chart

Microbiological Incidents



Financially motivated food safety incidents 2011





WHAT IS EXCEPTIONAL?

(IDENTIFY UNUSUAL OR ABNORMAL EVENTS)

Potential Signals



(Feb 2010 – May 2011)

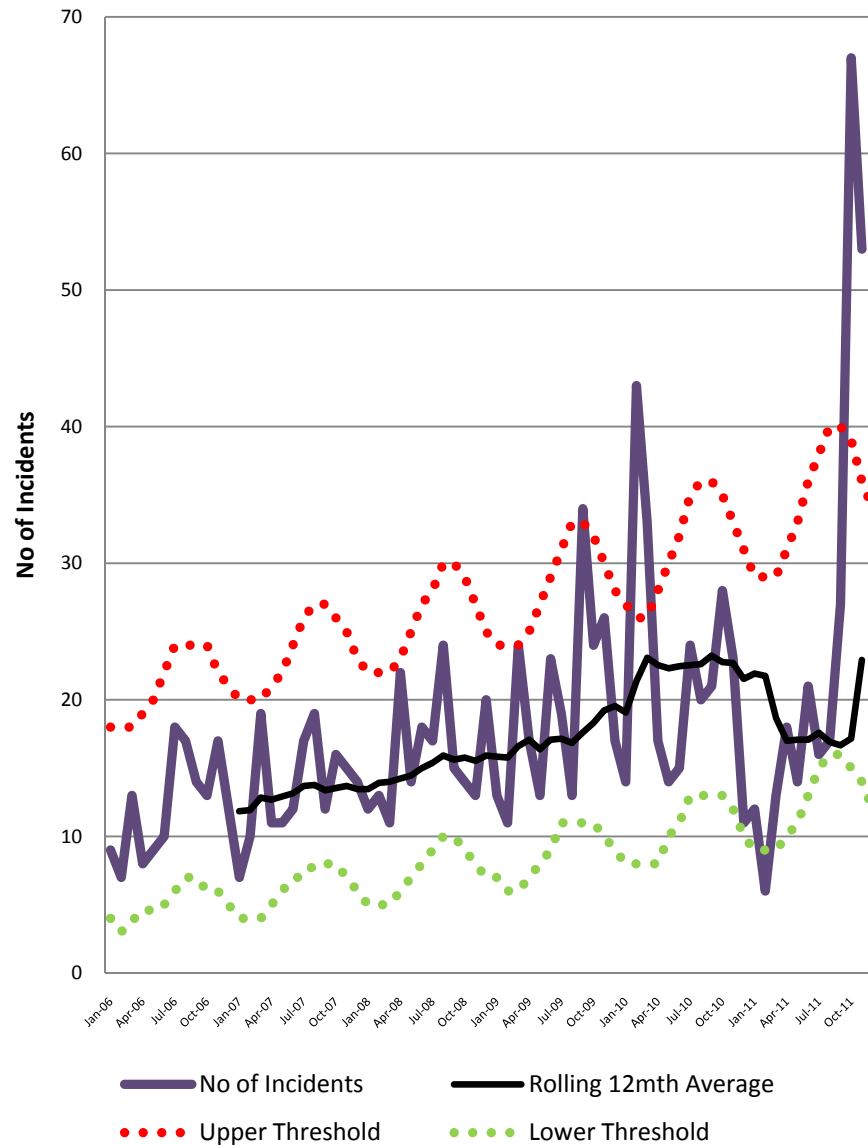
- **2200 signals discussed**
- **158 brought to the attention of the primary filter**
- **12 followed-up**



(Jan 2012 – Oct 2012)

- **~ 400 issues considered**
- **39 brought to the attention of the Evaluation Board**
- **11 followed-up**

Microbiological Incidents



Paan Leaves

- 97 incidents between Sep & Dec 2011
- *Salmonella* (18 different serotypes)
- Linked to flooding in Bangladesh

Growth - vegetative propagation of cuttings

- Irrigation using river water

Harvest – manual operation

- Washed in river water

Packaged - grass baskets

- Water sprinkled to increase weight

Transport- freight train to

- Cross-contamination

Re-pack in newspaper/ banana leaf

- Water sprinkled to increase weight & freshness

Transport – import by air

- Cross-contamination

UK Distribution

- Cross-contamination

OTHER RTE LEAVES ???

Product Extension

- ❖ **Widespread adulteration and contamination of milk with skimmed milk powder, water, vegetable oil and detergent.**
- ❖ **Indicates opportunity for adulteration exists.**
- ❖ **What other potential contaminants might there be? (eg; melamine, hydrolysed leather, etc....)**



WHAT DON'T WE KNOW?

(ANALYSE OUR GLOBAL FOOD CHAINS)

Global Chain Analysis helps us to identify weaknesses

CONTROL POINT	DRIVER	ANALYSIS METHOD	WHERE TO LOOK IN FOOD CHAIN
Hazard Point	Accidental: Error or failure to identify hazard	HACCP	Points associated with biological, chemical or physical hazards
Value Point	Intended: Financial or personal gain	VCA	Points associated with large changes in perceived value
Threat Point	Malicious: Personal or ideological gain	TACCP	Points where there is opportunity for covert human intervention

Economically motivated risks to food safety

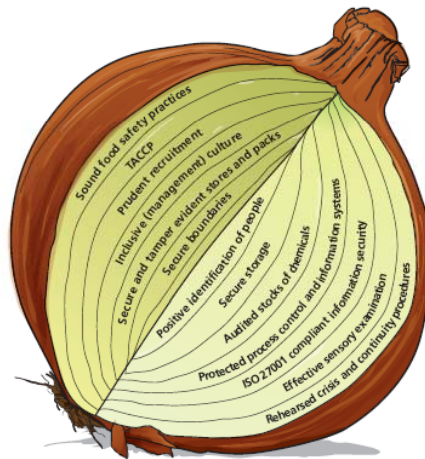
- Where in the supply chain is there opportunity to make money by deviating from best practice?
- What gives food value and how can this value be enhanced?
- Higher value foods are more susceptible
- History repeats itself
- Malpractices are transferrable between industries

PAS 96:2010

Defending food and drink

Guidance for the deterrence, detection and defeat of ideologically motivated and other forms of malicious attack on food and drink and their supply arrangements

Reviewed and updated in 2010



CPNI
Centre for the Protection
of National Infrastructure

BSi

TACCP

Threat Analysis Critical Control Point

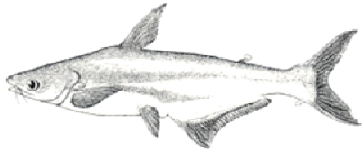
Outlined in PAS96:2010 - Publicly Available Specification for Defending Food & Drink

TACCP approach encourages the...

- systematic assessment of threats
- examination of processes to identify vulnerable points
- implementation of remedial action to improve resilience against malicious attacks by individuals or groups

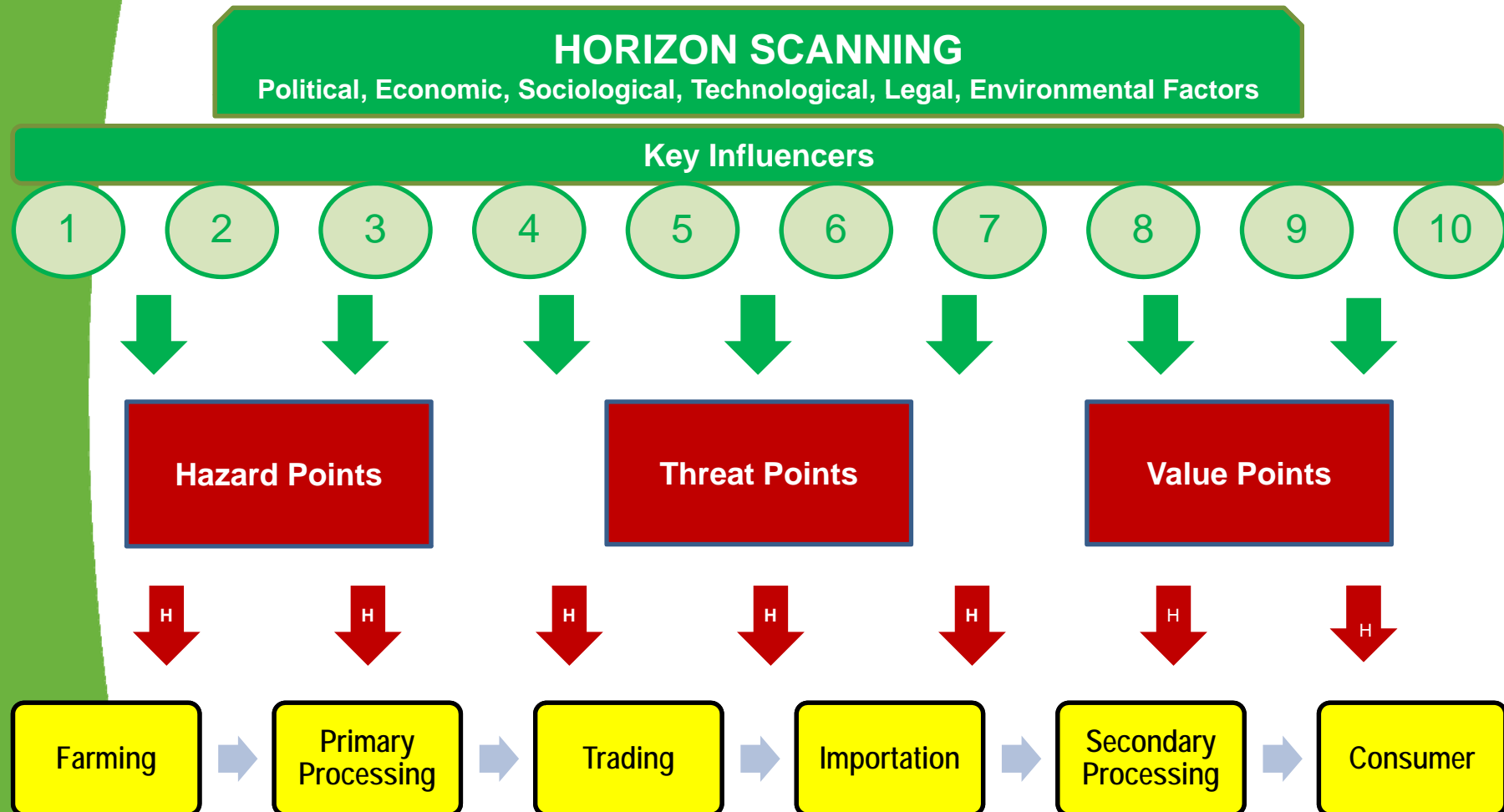
 **Food
Standards
Agency**
food.gov.uk

Example: Global Supply Chain for River Cobbler (Pangasius/Basa)



		Risk to Consumer		
		Hazard Point Unintended Food Contamination	Value Point Indirect Food Contamination	Threat Point Deliberate Food Contamination
PROCESS STEP	Breeding Farm	Risk of chemical contamination from industrial effluents, heavy metals, pesticides, etc...	Risk of chemical contamination from the use of unauthorised residues of veterinary medicines, steroids	
	Hatchery			
	Nursery Farm			
	Main Farm			
	Harvesting			
	Processing: Filleting, Individually Quick Frozen (IQF)	Risk of microbiological contamination due to poor controls	Risk of chemical contamination from the use of unauthorised preservatives	Risk of addition of “Agent X” during processing
	Storage			Risk of addition of “Agent X” to product in store
	Transport: Export			
	Purchasing: Wholesaler/Importer		Risk of species substitution / loss of traceability leading to potential food safety issues	
	Storage			Risk of addition of “Agent X” to product in store
	Purchasing: Fish’n’Chip Shop, Restaurant, Retailer etc...)		Risk of species substitution / loss of traceability leading to potential food safety issues	
	Processing: Defrosting, Cooking, etc...	Risk of microbiological contamination due to poor controls		Risk of addition of “Agent X” during processing

Scenario Setting & Future Studies



**HORIZON
SCANNING**

**“FUTURES”
STUDIES**

**EMERGING
RISKS**

**POLICY
MAKING**

ENFORCEMENT


In conclusion...

“There are known knowns; there are things we know we know.

We also know there are known unknowns; that is to say we know there are some things we do not know.

But there are also unknown unknowns – there are things we do not know we don't know”.....

United States Secretary of Defence
Donald Rumsfeld (2002)

- 
- All these techniques identify the world of food safety as we know it complete with flaws

- They give us a better understanding of why things happen and a picture of the “*known knowns*” and the “*known unknowns*”

- Horizon scanning and futures studies paint a picture of the world we haven't yet realised and how the pattern of “*known knowns*” might change as a result

- Global Chain Analysis combines these approaches enabling us to map weaknesses and identify gaps in the picture thereby potentially revealing “*unknown unknowns*”

- This complementary approach gives us the potential to identify and respond more quickly to food safety issues thereby creating...

Safer Food for the Nation



Thank You

Terry Donohoe
Food Standards Agency

emergingrisks@foodstandards.gsi.gov.uk

Safer Food for the Nation

