





Microbiological Risk Management in Indonesia

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Outlines

- Problems related to Food Safety in Indonesia
- Food Safety Management System in Indonesia

- Use of Risk Analysis in Food Safety Management :

NADFC : food safety network, food star system, inspector training, ASEAN

MMAF : risk assessment, mandatory food safety management at industry level

- Conclusions

Indonesia



Indonesia, a country of 234 million people



Problems Related to Food Safety Issues



- Infrastructures varies
- Human resources/education (producers, consumers, government officials) varies a lot
- Limited funding
- Food production system is dominated by SMEs (and household industries)



Problems Related to Food Safety Issues

Food/Agro Industries

- Number of Industries

Total	: 654.063 unit
Medium-Large Scale	: 2.013 (1.04%)
Small Scale	: 647.247 (98.96%)

- Number of manpower

Total	: 4.1 millions
Medium-Large Scale	: 1.9 millions (46%)
Small Scale	: 2.2 millions (54%)



Problems Related to Food Safety Issues

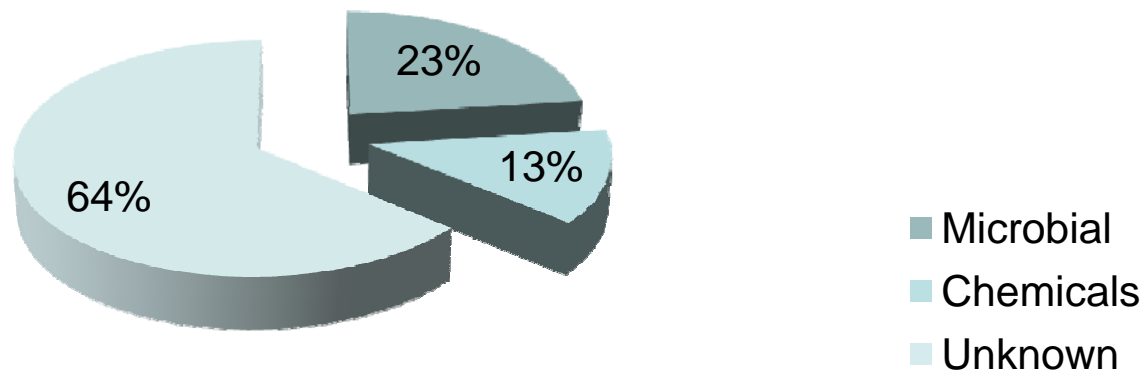
Food Poisoning (2001-2006)

Year	Σ Outbreak	Σ Illness	Σ Death
2001	26	1183	16
2002	43	3635	10
2003	34	1843	12
2004	164	7366	51
2005	184	8949	49
2006	159	8747	38

NADFC, 2008

Problems Related to Food Safety Issues

Foodborne illnesses are continuing concerns



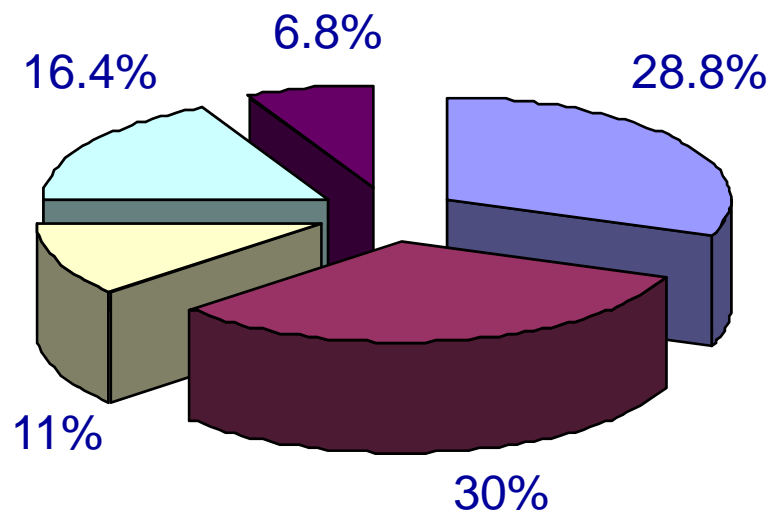
2001-2007, n=691 outbreaks (NADFC, 2008)

Problems Related to Food Safety Issues

Food Service Industries contribute most of the outbreaks

Jan-Sept 2004

73 outbreaks, 3,734 cases



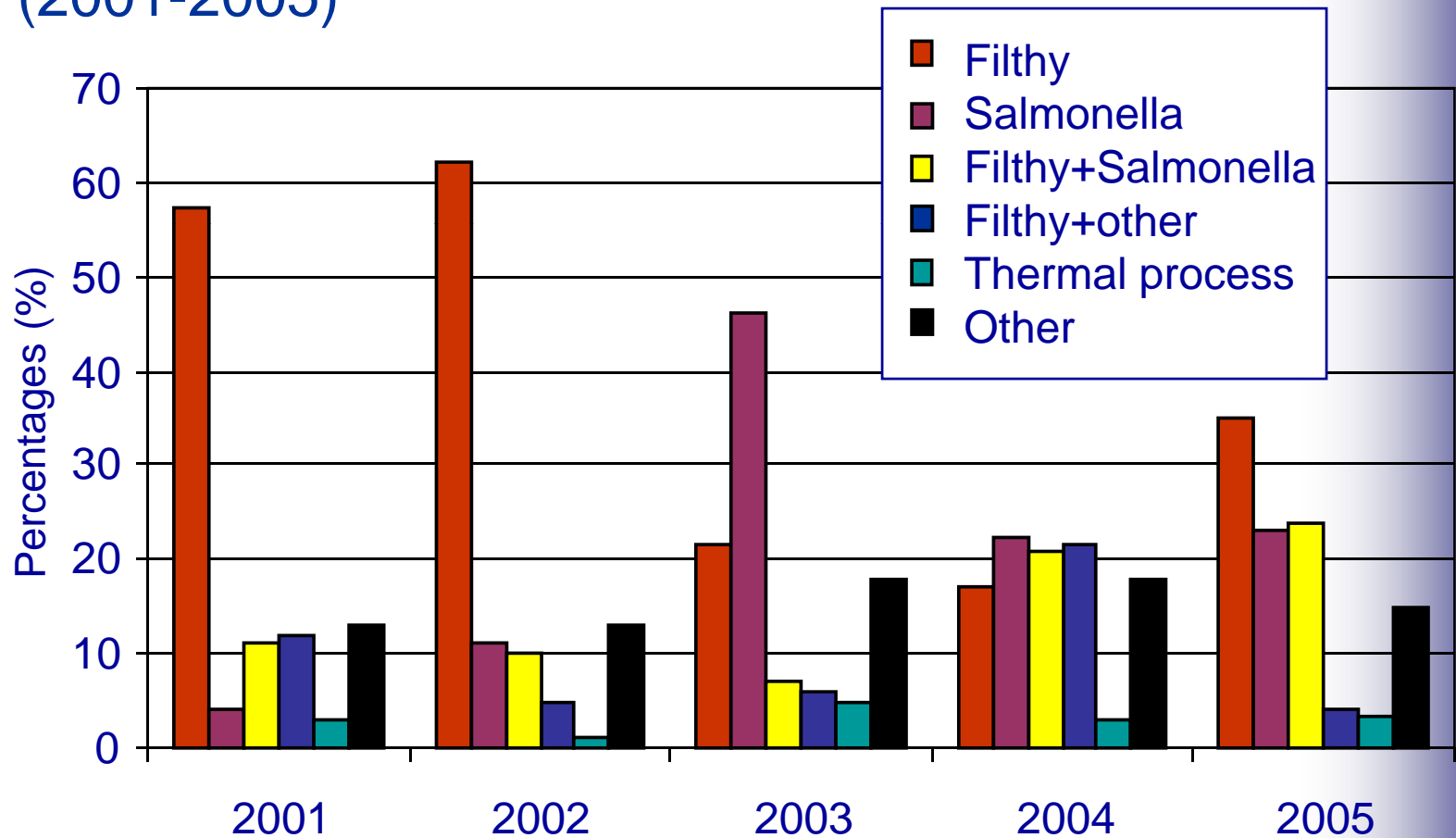
■ catering ■ household ■ street food ■ industry ■ unknown



Problems Related to Food Safety Issues

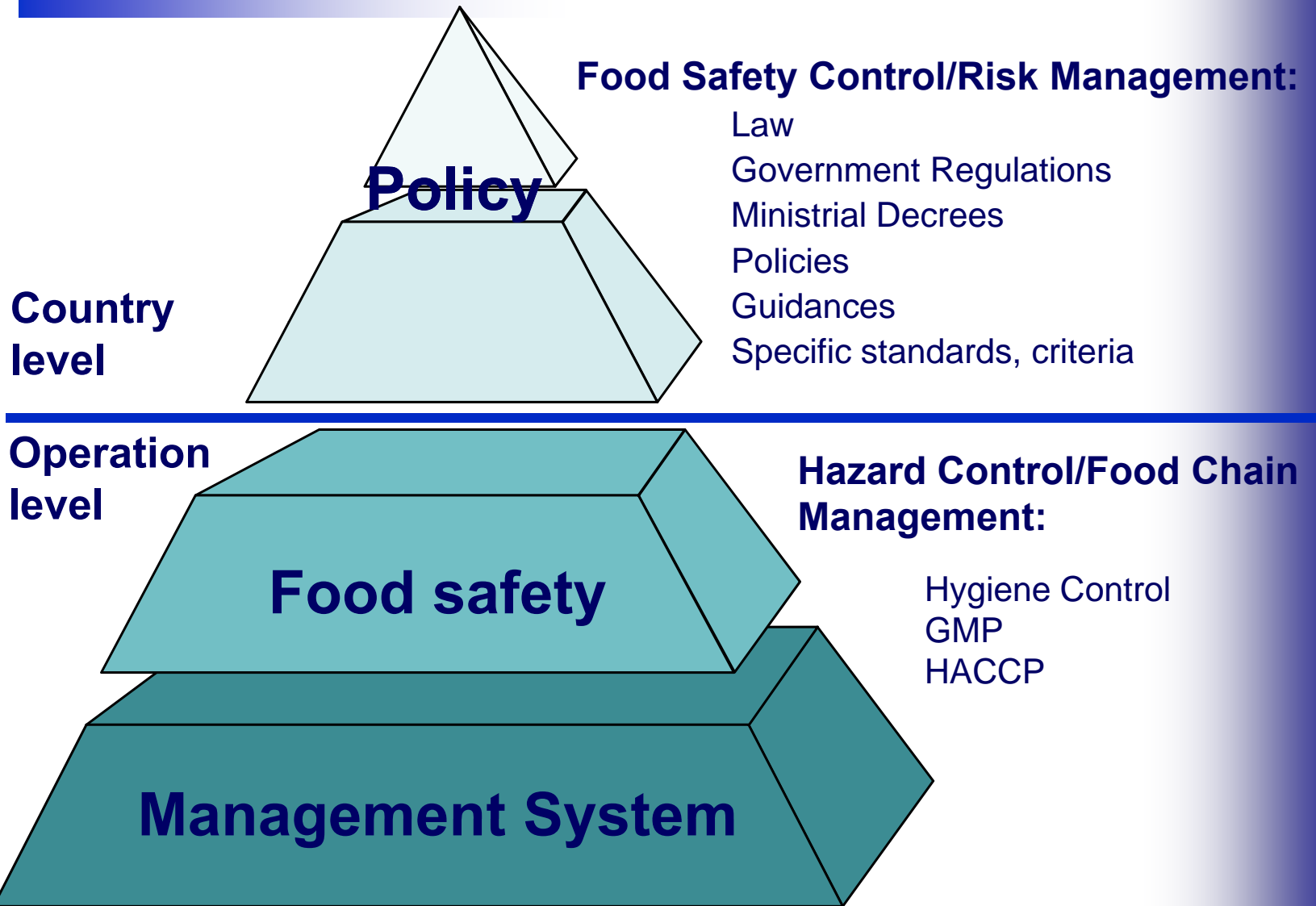


US Refusal of Food Import of Indonesia Origin (2001-2005)



(compiled from: <http://www.fda.gov/ora/oasis>).

Food Safety Management System





National Food System

Supply of Ag/Food Industry Input

Primary production

Primary Food Production

Secondary Food Processing

Distribution

Retail, Food service etc,

Household consumption

IMPORT

EXPORT

Food Law No 7 1996 :

Food regulation, nurturing and monitoring such that

- a. Food that meet safety, quality and nutrition requirements to support humans health is available**
- b. Fair and responsible food trade is developed**
- c. Availability of food with normal and accessible price is created**



National Food System

Supply of Ag/Food Industry Input



Primary production



Primary Food Production

IMPORT



Secondary Food Processing

EXPORT



Distribution



Retail, Food service etc,



Household consumption

Food Safety System :

- Across sectors
(team approach)
- *from farm to table*



Food Safety Management System in Indonesia

Government Regulation (GR) No 28 2004 defines the roles of various institutions in food safety management :

- National Agency for Drug and Food Control (NADFC) and its provincial centers (*Balai*)
- Ministry of Health (MH) and District Health office (DHO)
- Ministry of Agriculture (MA)
- Ministry of Marine Affairs and Fisheries (MMAF)
- Ministry of Forestry (MF)
- Ministry of Industry (MI)
- Ministry of Trade (MT)

Institutions playing roles according to GR 28 2004



	Activities at farm	Fresh products	Distribution and retail of fresh food	Food Manufacturer		Distribution of processed food	Processed food	RTE
				Middle-Large Scale	Small-Home Industries			
Permit	District.	District	District	MI, MMAF, NADFC	District	MA, MF, MT	MT	District
Food Registration				NADFC		NADFC MF	NADFC	t.a
Supervision (QA, level of contaminants)	MA MMAF MF	MA MMAF MF		MI MMAF NADFC	Districts under supervision of provincial DFC office	NADFC	NADFC	NADFC
Training	MA MMAF MF	MA MMAF MF			District	BPOM	NADFC	District NADFC
Evaluation or Pre-Market approval				NADFC			n.a.	n.a.
Inspection/ Investigation	NADFC	NADFC	NADFC	NADFC	NADFC	NADFC	NADFC	NADFC
Reporting	MA MMAF MF	MA MMAF MF	MA MMAF MF	MI (ind.), NADFC (products)	District		NADFC	District
Law enforcement	District	District	District	MI (Ind.) NADFC(products)	District	NADFC	NADFC	District

Authority for guidelines development according to GR 28 2004



Guidelines	Issued by
Guidelines of Good Agricultural/Farming Practices	MA, MMAF
Guidelines of Good Practices for Fresh Food of Agriculture/Farm	MA
Guidelines of Good Practices for Fresh Fisheries Food	MMAF
Guidelines of Good Manufacturing Practices	MI, MMAF
Guidelines of Good Practices for Food of Special Purposes	NADFC
Guidelines of Good Distribution Practices	MA, MI, MMAF
Guidelines of Good Retailing Practices	NADFC
Guidelines of Good Practices for RTE Food Production	MH



Several problems encountered

- Control is sectorally conducted
- Coordination is inadequate
- Discrepancy pertaining resources between institutions
- Inefficient
- Possibility of over-regulation



Pre-Market Evaluation



- All processed foods are subject for approval and have to be registered to NADFC :
 - MD (domestic)
 - ML (imported)
 - P-IRT (household-small industries)
- Food of animal origin also have to be approved by Ministry of Agriculture to get animal health certificate :
 - NKV



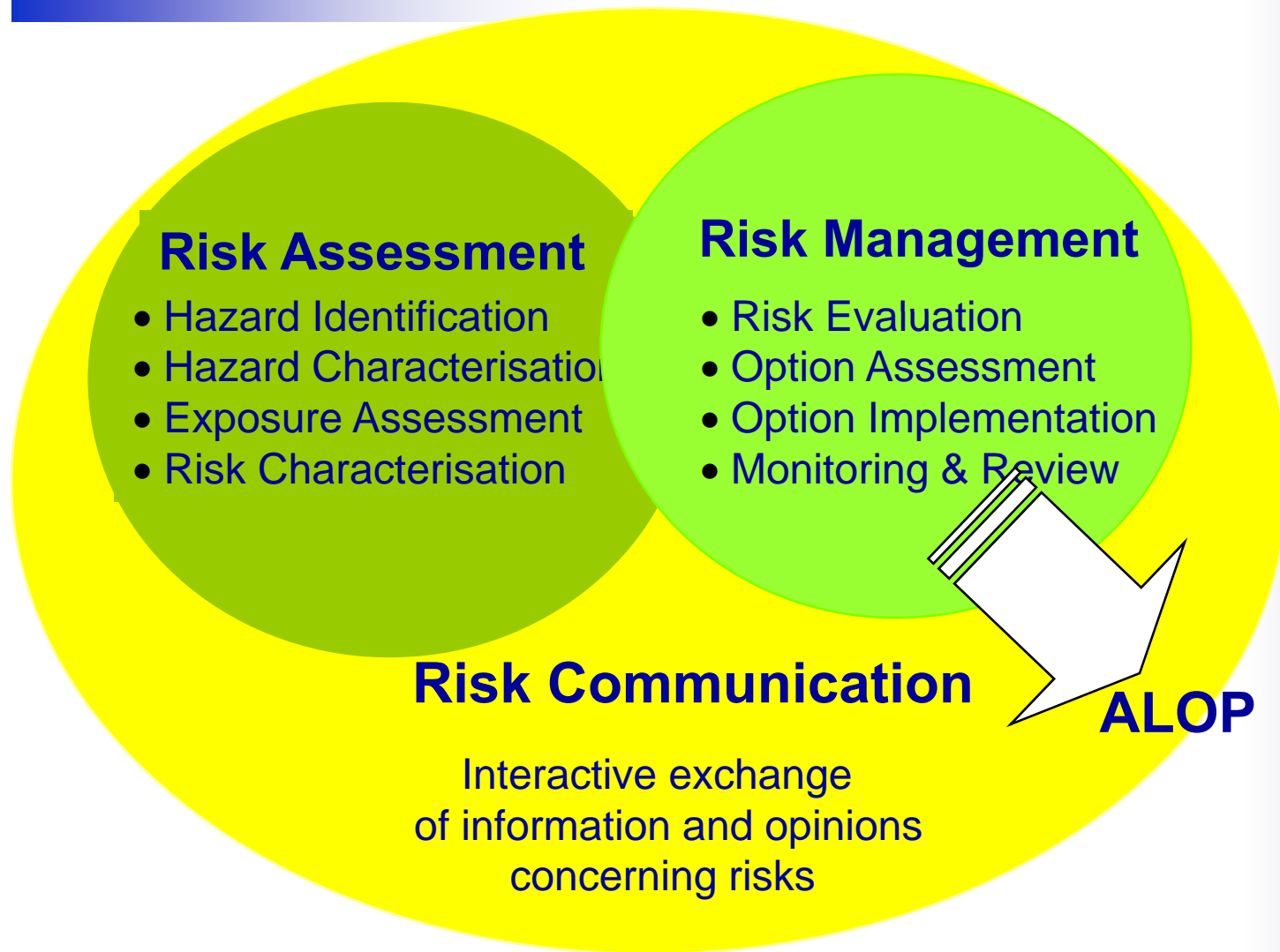
Food Standards (SNI)

Based on commodities, they are proposed by various Ministries to be approved by the National Standard Body of Indonesia (NSBI) through several steps :

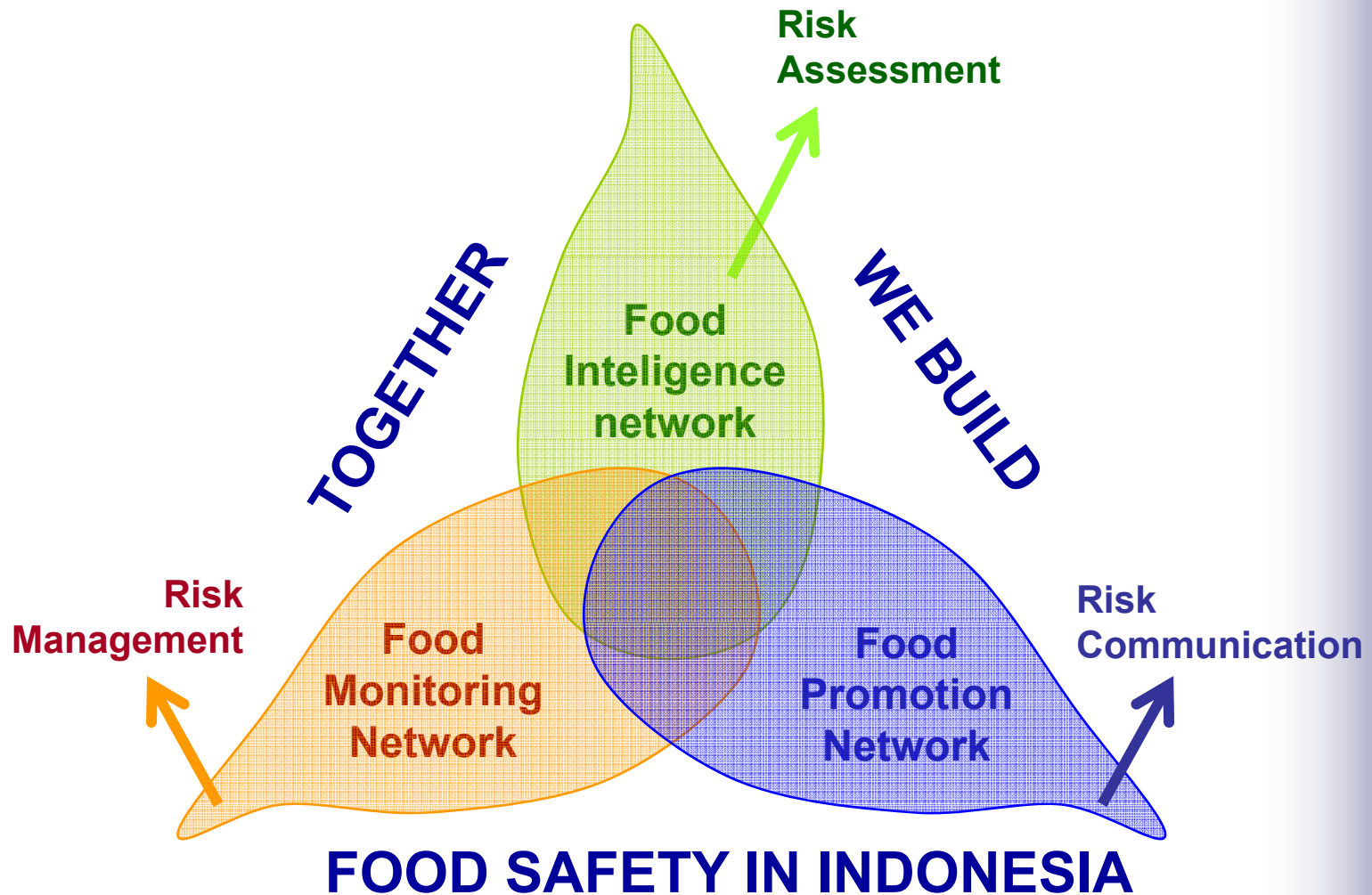
- draft writing by technical/subtechnical committee (additional experts)
- discussion within stakeholders
- draft consensus (RASNI)
- e-balloting
- SNI : most are voluntary



Use of Risk Analysis for Food Safety Management : **NADFC & MMAF**



NADFC develops Food Safety Network using Risk Analysis Framework





NADFC develops Food Safety Network using Risk Analysis Framework

Food Safety Networks

- Food Intelligence Network : meetings, workshops 3-4 times/year, discuss research and reports, mostly by academia and government
- Food monitoring : publish results of official routine inspections, also published in internet
- Food promotion : food safety education to public and special target (school children etc)



NADFC develops “Food Star System”

- Piagam Bintang (Star Certification) helps (small) industries build their food safety system



NADFC participates in Food Standard Harmonization for Asean



- Supported by ILSI-SEA
- Risk based
- Mostly for food additives & contaminants :
 - non-calorie sweeteners
 - colorants
 - MCPD
- In 2008 (7th Meeting) microbiological food safety management was discussed



Microbiological standards among SEA countries

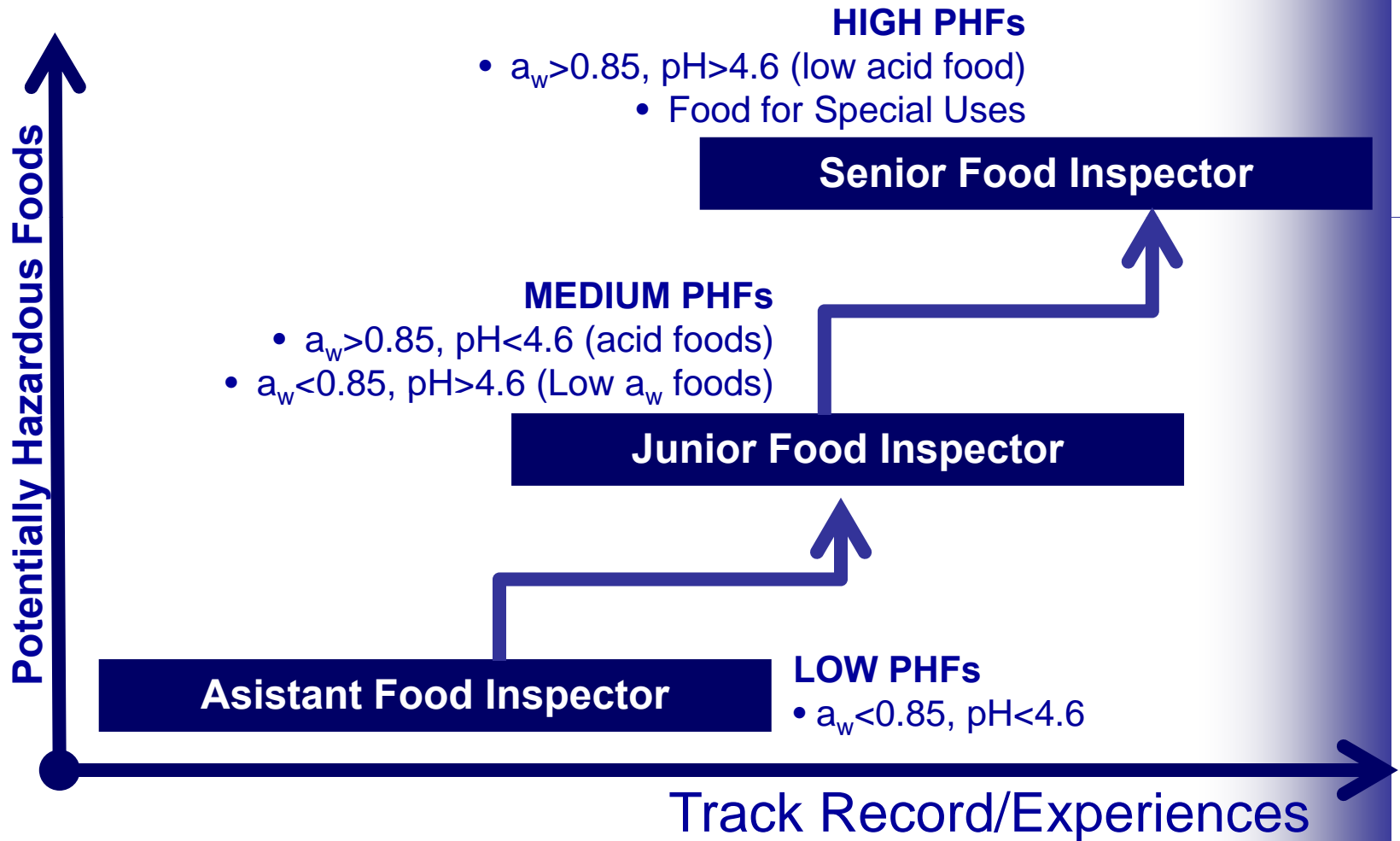
Examples of Microbiological Criteria :
Standard for *coliform* in Powdered Milk in SEA countries :

- 50/g; 100/g; absent in 0.1 g

- Standards vary
- Incomplete Microbiological Criteria?
- ICMSF (1982) for instant dried milk

Coliform : $n=5$, $c=1$, $m=10$, $M=100$ (case 5)

NADFC develops “Food Inspector Training/Certification System”



NADFC develops “Food Inspector Training/Certification System”



Priority for inspections

	High	H-L (3)	H-M (6)	H-H (9)
PHF	Med	M-L (2)	M-M (4)	M-H (6)
	Low	L-L (1)	L-M (2)	L-H (3)
		Low	Med	High
				CONSUMPTION



MMAF : food safety management in fisheries industries is mandatory

1974 : personnel certification for worker in fisheries industries, integrated in curriculum (D-3)

1998 : certification for premises/establishment that process fisheries products : GMP

1998 : HACCP certification for fisheries industries

MMAF participates in MRA



- Use of Microbiological Risk Assessment :
 - *Vibrio parahaemolyticus* in shrimp (along with 10 SEAN countries) : revision of shrimp standard
 - Assessment for source of contamination of ponds along northern Java : development for good practices



**Proposed scheme for
Managing
Microbiological Safety of
Foods (ICMSF, 2002)**

Epidemiological data indicate there is a need for improved control or there is concern for public health

Perform risk evaluation by expert panel or through a quantitative risk assessment

Establish an FSO when there is a need

Check whether the FSO is technologically achievable using preliminary process and/or product formulation criteria

Not achievable

Try to modify product and/or process

Achievable

Still not achievable

Ban product and/or process

Establish process/product criteria:
• Performance Criteria
• Process/product criteria

Implement control measures based on GHP and HACCP to control the process and product
Establish monitoring/verification procedures (sensory, physical, microbial)

Consider establishing microbiological end product criteria

Establish acceptance criteria





Banned product/process

- Banning of “tempe bongkrek” (mold fermented shredded coconut) due to toxins produced by *Burkholderia cocovenenans*
- Banning of peroxides for fresh milk treatment



Conclusions

- Microbial risk (and food safety) management in Indonesia has been developed based on multisystem to improve community health while improving domestic and export trade
- Risk analysis framework has been used to some extent in developing policies, guidelines and food standards
- The use of quantitative microbiological risk assessment for developing microbiological criteria falls behind those for chemical contaminants and additives
- Indonesia is moving to the right direction pertaining food safety management : integration between institutions must be improved or establishment of national food safety authority for risk assessment (?)

Thank You



Thank You

