



World Health
Organization

www.who.int/foodsecurity/foodborne_diseases/en

Estimating the Global Burden of Foodborne Diseases

To foster
global health security

To promote
economic growth and development

To strengthen
evidence-based policy-making

Estimer la charge mondiale
des maladies d'origine alimentaire

Pour promouvoir
la sécurité sanitaire internationale

Pour encourager
la croissance économique et le développement

Pour renforcer
l'élaboration des politiques sur la base d'éléments factuels



WHO Initiative to Estimate The Global Burden Of Foodborne Diseases

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Department of Food Safety & Zoonoses



World Health
Organization



What are "Foodborne Diseases"?

- NOT the nutritional disorders (deficiencies, malnutrition and/or obesity)
- Diseases *transmitted through the ingestion of contaminated food*
- Caused by bacteria, viruses, parasites, prions and chemicals/toxins (incl. allergens)
- ...and they are everywhere



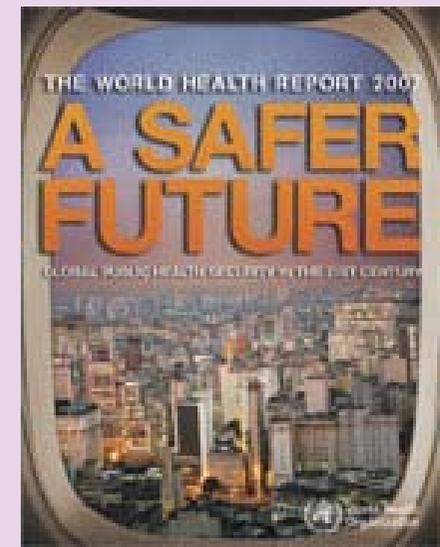
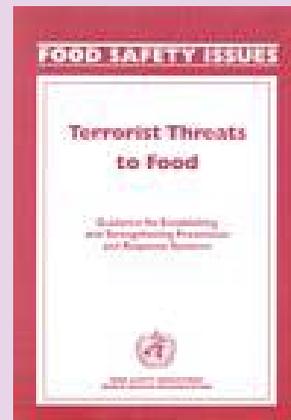


Myth No 1 – the obvious one:

'Foodborne disease problems are very localized'

- Rapid spread of foodborne disease outbreaks (trade, travel, migration, social unrest)
- Emergence of new foodborne diseases (e.g. vCJD)
- Use of food as a vehicle for deliberate contamination (terrorist threats to food)

**Foodborne diseases
are a global
health security
issue**



Myth No 2:

**'Foodborne diseases are mild,
self-limited and
and of short duration'**

Campylobacter:	Guillain Barré Syndrome Reactive arthritis
Salmonella spp:	Guillain Barré Syndrome Reactive arthritis Septicaemia Meningitis
Listeria:	Meningitis Septicaemia Perinatal loss
E.coli:	Renal failure
Pork tapeworm:	Epilepsy
Toxoplasma:	Retinopathy
Trichinella:	Multi-organ failure
Acrylamide:	Cancer
Arsenic:	Cancer
Aflatoxin:	Cancer
Lead:	Mental retardation
Dioxins:	Cancer
Allergens:	Anaphylactic shock

USA:

**5,000 deaths
from foodborne illness
from pathogens alone
each year**

(Mead et al, Emerg Infec Dis, 1999)

Myth No 3:

'Foodborne diseases are becoming less & less frequent'

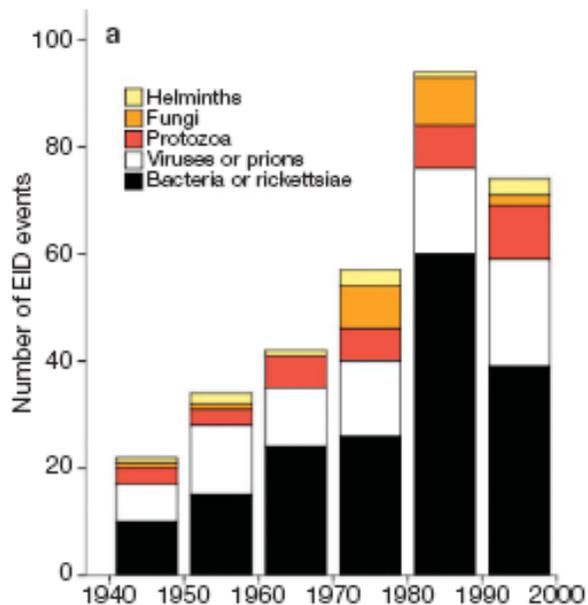
nature

Vol 451 | 21 February 2008 | doi:10.1038/nature06536

LETTERS

Global trends in emerging infectious diseases

Kate E. Jones¹, Nikkita G. Patel², Marc A. Levy³, Adam Storeygard³†, Deborah Balk³†, John L. Gittleman⁴ & Peter Daszak²



- 335 newly emerging infectious diseases:
- 95 pathogens transmitted through food (~27%)
 - 50 (15%) due to "changes in agricultural or food industry"
 - many resistant to antibiotics

Compounded by effects of climate change

**Myth No 4 –
the dangerous one:**

**'Food security is more
important than food safety'**



- Malnourished people are more vulnerable to foodborne diseases & more likely to die
- Contaminated food is rarely discarded in famine situations

Myth No 5:

'Food safety is a luxury that rich countries can afford'

Foodborne diseases
are a global
development
issue

• 4 out of 8 MDGs:

affected directly by progress with food safety



UN Millennium Development Goals (MDGs)

Foodborne diseases – diseases of poverty:

- Poor food regulatory systems and enforcement
- Poor food storage & preparation → contamination
- Foodborne diseases cause high rates of work absenteeism and medical expenses → poverty
- Many foodborne diseases are zoonoses, hence reflection of disease in livestock → poverty & trade issues



UN Millennium Development Goals
(MDGs)

Foodborne diseases – contributors to child mortality:

- Children particularly vulnerable to contaminated environments, incl. food
- 1.9 million child deaths from diarrhoeal diseases annually
- Children living with HIV/AIDS especially vulnerable to infections
- Pregnant women especially affected by foodborne diseases (Toxoplasmosis, listeriosis)

Achievement of MDGs jeopardized if food safety not strengthened



UN Millennium Development Goals (MDGs)



How big is the burden of foodborne diseases?

Reported human cases



What we know from surveillance data

What we need to know

Actual human disease burden

Myth No 6 – the understandable one:

'We can never estimate the burden of foodborne diseases'

"How else to assess effectiveness of food safety policies & interventions?"

Estimación de la carga mundial de morbilidad atribuible a las enfermedades de transmisión alimentaria

World Health Organization
www.who.int/foodafety/foodborne_diseases/ferg

Estimating the Global Burden of Foodborne Diseases

To foster global health security
To promote economic growth and development
To strengthen evidence-based policy-making

Estimer la charge mondiale des maladies d'origine alimentaire
Pour promouvoir la sécurité sanitaire des aliments
Pour encourager la croissance économique et le développement
Pour renforcer l'élaboration de politiques sur la base d'éléments factuels

Estimer la charge mondiale des maladies d'origine alimentaire

Organisation mondiale de la Santé

Yes, we can.

And we are doing it

Recommendation:
WHO to lead efforts & appoint *Foodborne Disease Burden Epidemiology Reference Group (FERG)*

"What doesn't get measured, doesn't get done"

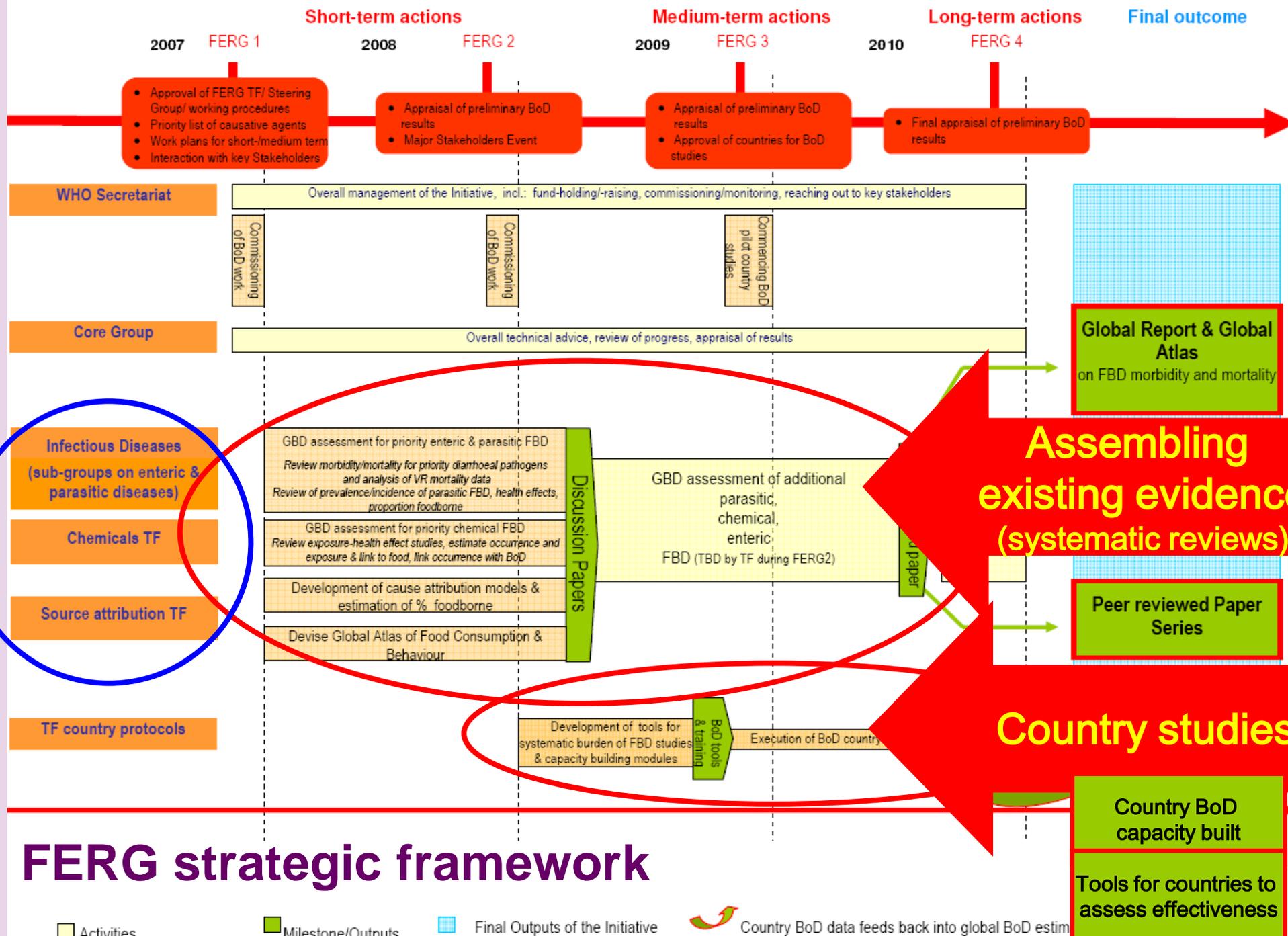
What is the FERG?

FERG = scientific  World Health Organization expert group appointed by & advising the WHO Director General

- representing all regions of the world (North & South)
- representing all areas of foodborne diseases, economics, policy etc.

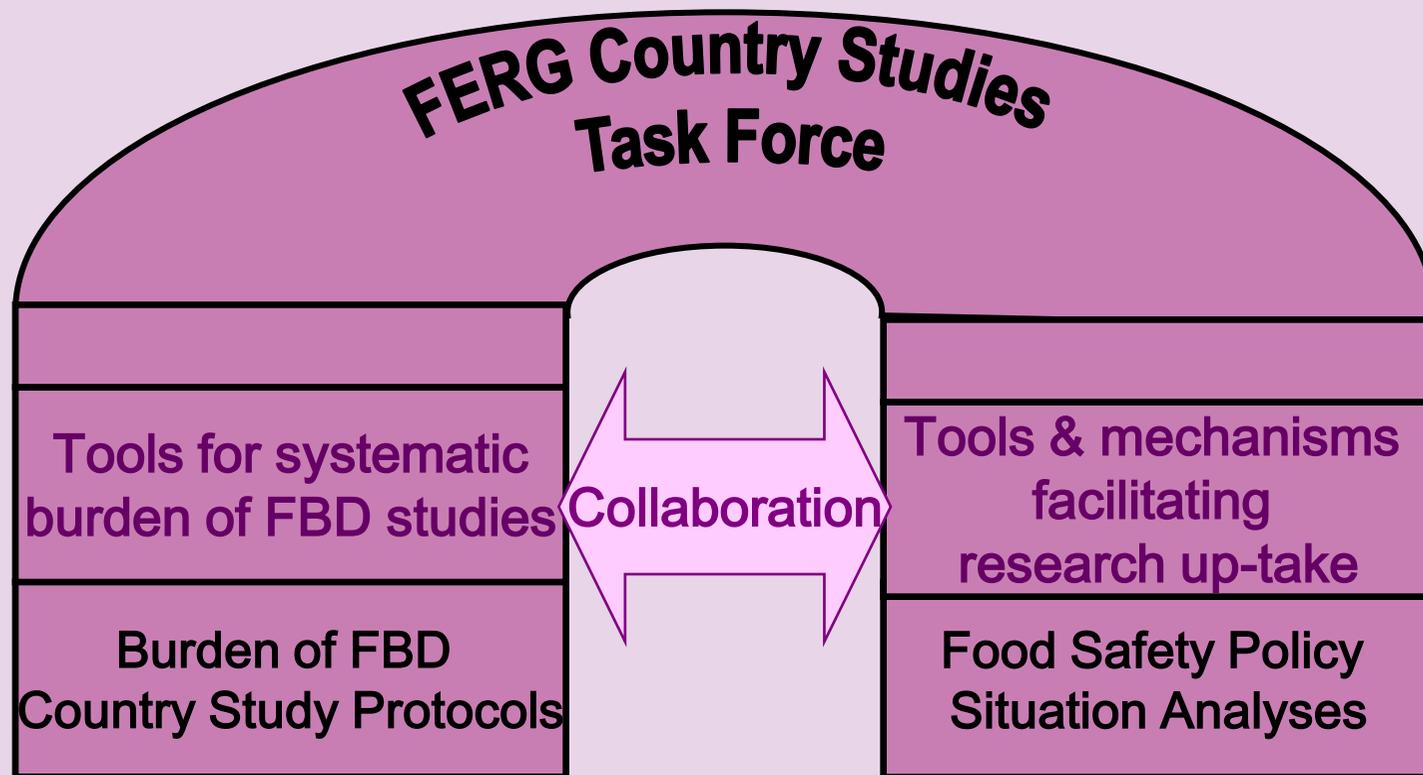
What are the objectives of FERG?

- **To provide epidemiological estimates on the global burden of all relevant foodborne diseases** (according to age, sex and WHO regions)
- **To assist WHO to strengthen the capacity of countries to conduct burden of foodborne diseases and cost of illness studies**
- **To assist WHO in bridging the gap between collection of scientific evidence and food safety policy making.**



FERG strategic framework

How to bridge the gap between researchers and policy-makers ?



- Launched in June 2009
- Aiming for 3 studies in each WHO region

Who are the multi-sectoral stakeholders?

- WHO member states
- Bi/multi-lateral donors
- NGOs
- Consumer groups
- Industry
- Public & scientific media



Nancy Donley speaking at the Stakeholder Meeting.



America's Voice for Safe Food



Please join us!

- Discuss scientific methods and burden results
- Interact with stakeholders
- Discuss scientific implications with policy makers
- **GIVE US YOUR VIEWS**



World Health
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**On the occasion of the third meeting of
The Foodborne Disease Burden Epidemiology Reference Group
(FERG)**

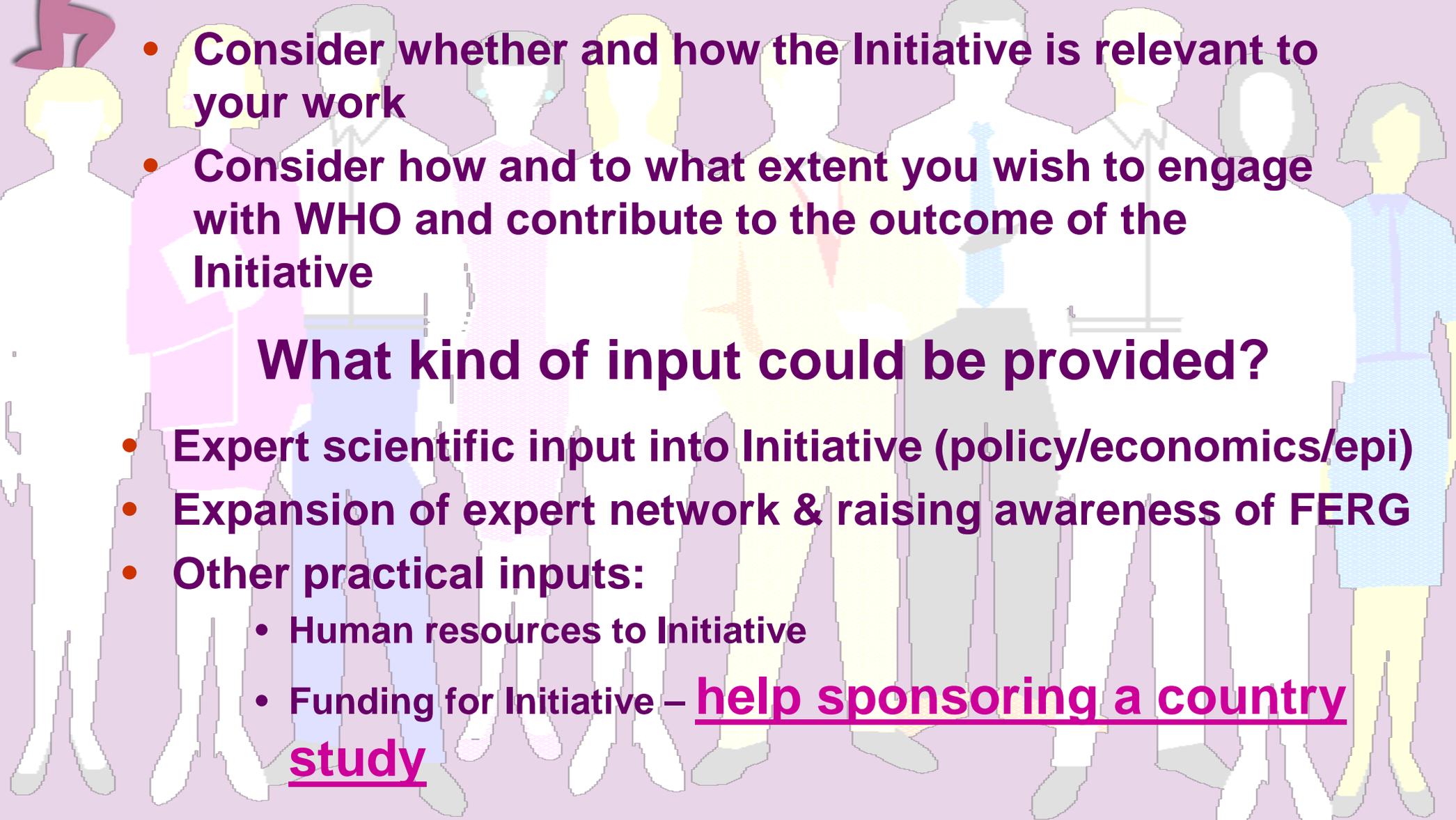
Thursday, 29 October 2009

10:00 – 18:00 hrs, followed by a reception

WHO Headquarters, Executive Board Room, Geneva



Extending the alliance of partners – Get involved!

- 
- Consider whether and how the Initiative is relevant to your work
 - Consider how and to what extent you wish to engage with WHO and contribute to the outcome of the Initiative

What kind of input could be provided?

- Expert scientific input into Initiative (policy/economics/epi)
- Expansion of expert network & raising awareness of FERG
- Other practical inputs:
 - Human resources to Initiative
 - Funding for Initiative – help sponsoring a country study

Thank you

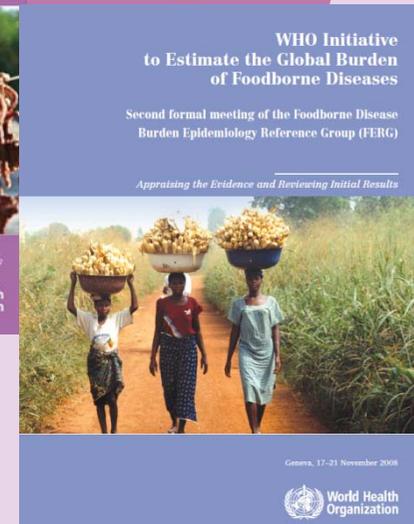
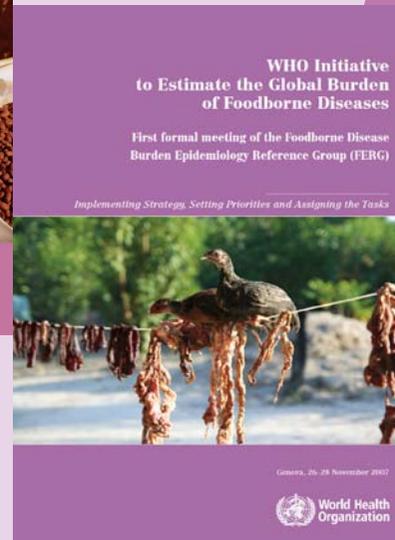
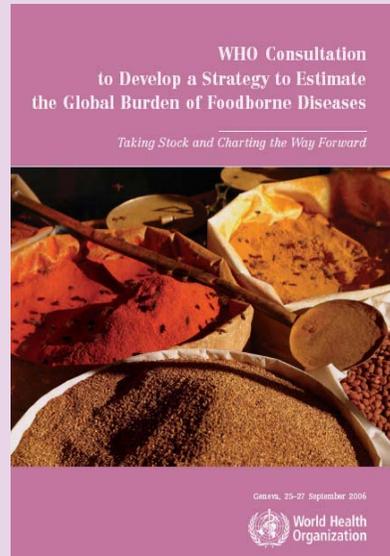
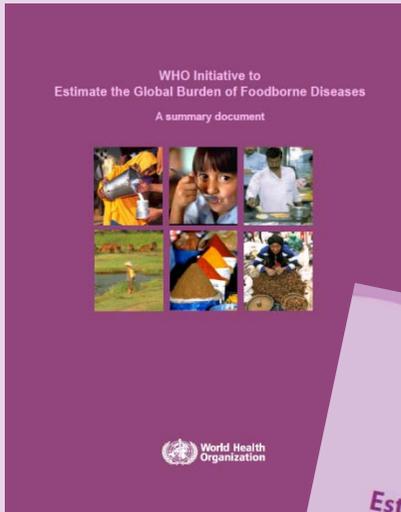


Intestines hanging out to dry,
Cambodia



FERG Documents:

www.who.int/foodsafety/foodborne_disease/ferg



Summary documents

FERG & Stakeholder reports



Extra slides



In summary: WHO Initiative to Estimate the Global Burden of Foodborne Diseases (FBD)

Why?

- Because information on burden of FBD from all causes is poor
- Policy makers require information to assess effectiveness of prevention and interventions (incl. Codex)
- Foster international development and global health security

• What?

- Estimation of morbidity, disability and mortality of FBD, leading to cost of illness assessments
- Development of tools for countries to conduct BoD studies

• How?

- Foodborne Disease Burden Epidemiology Reference Group (FERG)
- Time frame of at least 5 years

• Outcome?

- Global report and global atlas
- Country Burden of Disease studies



Foodborne diseases maim and kill

- Food safety concerns everyone, everywhere
- Foodborne diseases affect global development & global health security
 - Everyone has a role to play in making our food safer
- Estimating the burden of foodborne diseases is a critical element in the improvement of food safety

Myth No 5:

**'Foodborne diseases are mild,
self-limited and
and of short duration'**

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Arsenic:	Cancer
Aflatoxin:	Cancer
Lead:	Mental retardation
Dioxins:	Cancer
Allergens:	Anaphylactic shock





FERG – composition & process

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Food Safety

Zoonoses

Microbiological risks

Chemical risks

Biotechnology (GM foods)

Food standards (Codex Alimentarius)

Foodborne disease

Food production to consumption

Capacity building

Consumer education

Prof. Gabriel Adegoke
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Dr Josef Schlatter
Prof Rolaf van Leeuwen

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Health topics

Publications

Data and statistics

Members of the Foodborne Disease Burden Epidemiology Reference Group (FERG)

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[Biography](#)

Dr Tine Hald
Head of Section Danish Zoonoses Centre, National Food Institute, Denmark
[Biography](#)

1. Burden of disease
2. Epidemiology

Cause attribution
Disease modeling

Foodborne diseases
& toxins
Distribution studies

Myth No 1:

'Foodborne diseases are mostly a problem in developing countries'



USA:

**76 million cases
of foodborne illness
from pathogens alone
each year**

(Mead et al, Emerg Infec Dis, 1999)



Myth No 2:

'Foodborne diseases in rich countries are mostly travel-related'

United States and EU:

In most countries majority of cases is domestically acquired

(CDC & European Food Standards Agency)

Myth No 6 – the hopeful one:

'As a vegetarian I am less likely to get foodborne diseases'



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HEALTH MAIN LIVING WELL DIET & FITNESS

January 10, 2009 -- Updated 0144 GMT (0944 HKT)

Peanut butter recalled amid salmonella outbreak



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E. coli tainted spinach sickens 109 in U.S.



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From The Times
September 16, 2008

Chinese milk powder contaminated with melamine sickens 1,253 babies

TIMES RECOMMENDS

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- » Mullahs can't ignore Europe
- » Foreign Office credibility undermined

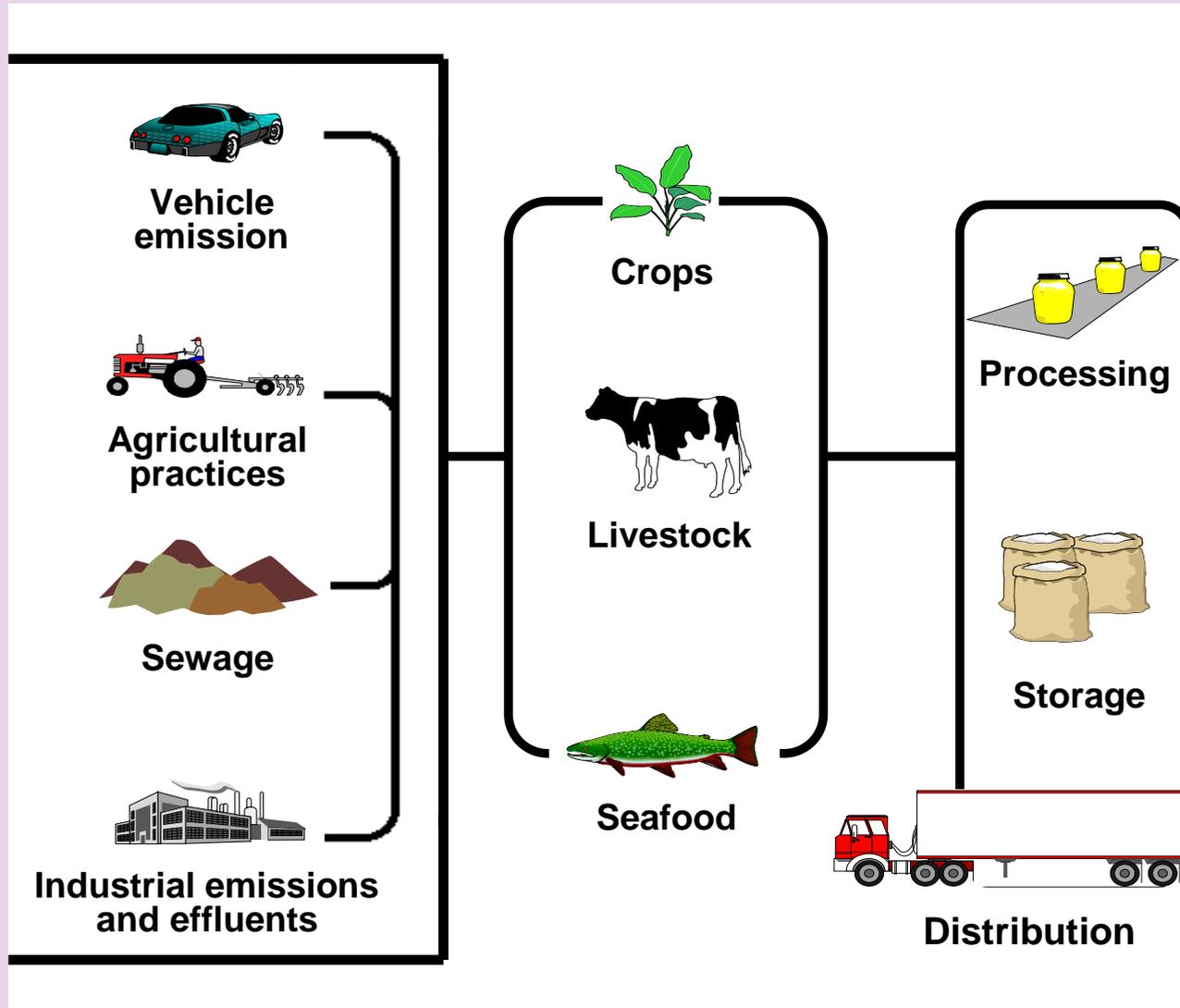
TIANANMEN

(China Daily/Reuters)

... biggest milk powder manufacturer, sold ... their produce with industrial

Myth No 7 – the easy one:

'Governments hold the sole responsibility for making food safer'



Five keys to safer food

Keep clean

- ✓ Wash your hands before handling food and often during food preparation
- ✓ Wash your hands after going to the toilet
- ✓ Wash and sanitize all surfaces and equipment used for food preparation
- ✓ Protect kitchen areas and food from insects, pests and other animals

Why?
While most microorganisms don't cause illness, dangerous microorganisms are widely found in soil, water, animals and people. These microorganisms are carried on hands, wiping cloths and utensils, especially cutting boards and the slightest contact can transfer them to food and cause foodborne diseases.

Separate raw and cooked

- ✓ Separate raw meat, poultry and seafood from other foods
- ✓ Use separate equipment and utensils such as knives and cutting boards for handling raw foods
- ✓ Store food in containers to avoid contact between raw and prepared foods

Why?
Raw food, especially meat, poultry and seafood, and their juices, can contain dangerous microorganisms which may be transferred onto other foods during food preparation and storage.

Cook thoroughly

- ✓ Cook food thoroughly, especially meat, poultry, eggs and seafood
- ✓ Bring fluids like soups and stews to boiling to make sure that they have reached 70°C. For meat and poultry, make sure that juices are clear, not pink. Ideally, use a thermometer
- ✓ Reheat cooked food thoroughly

Why?
Proper cooking kills most all dangerous microorganisms and reduces down to cooking food to a temperature of 70°C can help ensure it is safe for consumption. Foods that require special attention include minced meat, sausages, large joints of meat and whole poultry.

Keep food at safe temperatures

- ✓ Do not leave cooked food at room temperature for more than 2 hours
- ✓ Refrigerate promptly all cooked and perishable food (preferably below 5°C)
- ✓ Keep cooked food piping hot (more than 60°C) prior to serving
- ✓ Do not store food too long even in the refrigerator
- ✓ Do not thaw frozen food at room temperature

Why?
Microorganisms can multiply very quickly if food is stored at room temperature. By holding at a temperature below 5°C or above 60°C, the growth of microorganisms is slowed down or stopped. Some dangerous microorganisms will grow below 5°C.

Use safe water and raw materials

- ✓ Use safe water or treat it to make it safe
- ✓ Select fresh and wholesome foods
- ✓ Choose foods processed for safety such as pasteurized milk
- ✓ Wash fruits and vegetables, especially if eaten raw
- ✓ Do not use food beyond its expiry date

Why?
Raw materials, in particular water and ice, may be contaminated with dangerous microorganisms and chemicals. Toxic chemicals may be found in damaged and mouldy foods. Care in selection of raw materials and storage measures such as washing and peeling may reduce the risk.

Knowledge = Prevention

Food Safety World Health Organization