

# WHO Initiative to Estimate the Global Burden of Foodborne Diseases

## A summary document



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### List of acronyms

BoD	Burden of Disease
BSE	Bovine Spongiform Encephalopathy
CDC	US Centers for Disease Control and Prevention
CHERG	Child Health Epidemiology Reference Group
FAO	Food and Agricultural Organization of the United Nations
FBD	Foodborne Disease(s)
FERG	Foodborne Disease Burden Epidemiology Reference Group
FOS	Department of Food Safety, Zoonoses and Foodborne Diseases
GBD	Global Burden of Disease
GSS	WHO Global Salmonella Surveillance
MDG	Millennium Development Goal(s)
MERG	Malaria Monitoring and Evaluation Reference Group
OIE	World Organisation for Animal Health
WHO	World Health Organization

## I. Executive Summary

The Department of Food Safety, Zoonoses and Foodborne Diseases (FOS) at the World Health Organization (WHO) seeks additional funding to conduct its Initiative to Estimate the Global Burden of Foodborne Diseases in 2009. The Initiative aims to provide global burden of foodborne disease estimates for microbial, parasitic, and chemical causes by 2011. Two tracks will be applied:

- a) a Foodborne Disease Burden Epidemiological Reference Group (FERG) will assemble, appraise and report on burden of FBD estimates.
- b) in-depth country studies will supplement the work of FERG and enable countries to conduct their own burden of disease studies.

A monitoring and evaluation framework is being developed to ensure quality performance and demonstrate accountability as well as transparency of the Initiative to key stakeholders. Moreover, a communication strategy ensures effective dissemination of the Initiative's results and facilitates regular dialogue with the stakeholder community.

An alliance of partners has contributed seed funding for the Initiative in the order of US\$ 750,000. In order to implement the activities for 2009, the Initiative requires additional funding amounting to 2.3 million USD. Agencies invested in strengthening food safety systems as well as country capacity to research and reduce the burden of disease will be interested in the work of FERG.

## II. Introduction

Food safety touches all our lives. Meat, egg, fish, but also chocolate, peanut butter or lettuce - all of these products have been associated with contamination and foodborne illness. New foodborne as well as antibiotic-resistant pathogens have emerged which are circumventing conventional control measures. In many parts of the world, FBD are appearing to increase and problems in one part of the world are now quickly exported. Yet no global estimation of the disease burden has ever been performed, with the exception of a few national studies that have examined microbial incidence of FBD.

Foodborne diseases are an important cause of morbidity and mortality worldwide. Diarrhoeal diseases alone - a considerable proportion of which is foodborne - kill 1.8 million children globally every year. Although most of these diarrhoeal deaths occur in

poor countries, foodborne diseases are not limited to developing countries. It is estimated that in the United States, foodborne diseases result in 76 million illnesses, 325,000 hospitalizations and 5,000 deaths each year<sup>1</sup>. The full extent of the burden and cost of unsafe food, however, is currently unknown. Data from developing countries, where populations are particularly exposed to contaminated environments, are scarce. Precise information on the burden of disease is needed to



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Fishmonger's stall in Senegal.

adequately inform policy-makers how best to allocate resources for appropriate foodborne disease control efforts. Without concerted action to estimate and reduce the burden of foodborne diseases, global health security will be jeopardized and international efforts

to achieve the Millennium Development Goals, including the overarching goal of poverty reduction, will be impaired. In 2006 and in collaboration with multiple international partners, WHO's Department of Food Safety Zoonoses and Foodborne Diseases (FOS) held an international consultation to launch an initiative and provide a strategic framework to estimate the global burden of foodborne diseases. One of the consultation's main recommendations was to establish - under the leadership of WHO/FOS - a multi-disciplinary Foodborne Disease Burden Epidemiology Reference Group (FERG) to implement the consultation's strategic recommendations and estimate the global burden of foodborne diseases.

The procedure of using technical expert groups for burden of disease assessment has been previously and successfully applied by other WHO programmes. FOS has analysed the lessons learnt from these programmes which has guided the principles behind the establishment of the FERG<sup>2</sup>.

Although WHO is using its own funds to support this important Initiative and has established an international alliance of financial partners, additional funding is required for 2009. The proposal will, at first, give some background information on foodborne diseases and their impact on global health security, development and the global economy with Section 1 providing the rationale for the launch of the Initiative. The Initiative, including its goal and objectives, is described in more detail in Section 2. Section 2 also gives an overview of the Initiative's processes and major activities for 2009. Section 3 focuses on monitoring and evaluation as well as dissemination of the Initiative's results. Section 4 highlights the comparative advantage of WHO in leading, managing and coordinating the Initiative, while Section 5 emphasizes the important role of partners in this context. Finally, Section 6 details the budgetary requirements for 2009.

<sup>1</sup> Mead PS, Slutsker L, Dietz V, McCaig LF, Bresee JS, Shapiro C, Griffin PM, Tauxe RV. Food-related illness and death in the United States. *Emerg Infect Dis.* 1999 Sep-Oct;5(5):607-25.

<sup>2</sup> Stein C, Kuchenmüller T, Hendrickx S, Prüss-Ustün A, Wolfson L, Engels D, Schlundt J. The Global Burden of Disease Assessments - WHO Is Responsible? *PLoS Negl Trop Dis.* 2007 December; 1(3): e161.

### III. Why estimate the global burden of foodborne diseases (FBD)?

**Safer food saves lives.** With every bite we eat, we might expose ourselves to illness from either microbial or chemical contamination. Billions of people are at risk and fall ill every year; many die as a result of consuming unsafe food.

In today's interconnected world, local foodborne disease outbreaks potentially affect the entire globe. Originating in East Asia, the H5N1 bird flu virus has spread to many parts of the world. Baby corn exported from Thailand recently led to *Shigellosis* outbreaks in Australia and Denmark, and frozen dumplings imported from China led to *organo-phosphate* poisoning of more than 3,000 consumers in Japan, with many of them requiring hospital care. These examples demonstrate our universal vulnerability and the threat that **food contamination poses to public health security**.

Concerns about food safety have skyrocketed in more affluent societies. Food scares involving *Salmonella* and *E. Coli* 0157:H7 in the United States or the spread of *Bovine Spongiform Encephalopathy* (BSE) in Europe were prominently featured in the media and have alarmed consumers. However, the **real tragedy of foodborne diseases is played out in the developing world**. Unsafe water used for the cleaning and processing of food, poor food-production processes and -handling (including inappropriate use of agricultural chemicals), the absence of adequate food storage infrastructure and inadequate or poorly enforced regulatory standards all contribute to a high risk environment. Moreover, as a country's economy develops, the agricultural landscape changes. Intensive animal husbandry practices are put in place to maximize production resulting in the increased prevalence of pathogens such as *Salmonella* and *Campylobacter* in flocks and herds. The tropical climate of many developing countries favours the proliferation of pests and naturally occurring toxins, and the risk of contracting parasitic diseases, including worm infestations.

While exposed to more hazardous environments, **people in developing countries often have difficulty coping with foodborne diseases**. For many living at/ below the poverty line, foodborne illness perpetuates the cycle of poverty. The symptoms of food borne diseases range from mild and self-limiting (nausea, vomiting and diarrhoea) to debilitating and life-threatening symptoms (such as kidney and liver failure, brain and neural

disorders, paralysis and potentially cancers) leading to long periods of absenteeism and death. Without substantial investment in food safety prevention and control the achievement of the Millennium Development Goal (MDG) 1 which aims to **eradicate global monetary poverty and reduce hunger by 2015 will be jeopardized** (cf. figure 1). Detailed data on the economic costs of foodborne diseases in developing countries are largely missing. In the United States, a government report estimated in 1993 that foodborne diseases account for up to USD 9.4 billion in lost work and medical expenses annually<sup>3</sup>. On the basis of per capita income, the economic burden to people in India affected by an outbreak of *Staphylococcus aureus* food poisoning was estimated to be higher than the costs resulting from a similar outbreak in the US<sup>4</sup>.

Foodborne pathogens take advantage of weak immune systems. Infants and young children, pregnant women, the elderly as well as immuno-compromised people are particularly at risk of contracting and dying from common food-related diseases. Every year, 1.8 million children die of diarrhoeal disease<sup>5</sup>, an illness which is generally easy to treat<sup>6</sup>. Malnourished infants and children are especially exposed to foodborne hazards and at higher risk of developing serious forms of foodborne diarrhoeal diseases; these infections in turn exacerbate malnutrition thus leading to a vicious circle of mortality. Those who survive may suffer from delayed physical and mental development, depriving them of the opportunity to reach their full potential in society. It is unlikely that the internationally agreed goal of **reducing child mortality by two thirds** (MDG 4) will be achieved unless countries recognize the need for and invest in improvements in domestic food safety. (cf. figure 1)

Beyond the individual level, **foodborne diseases affect**

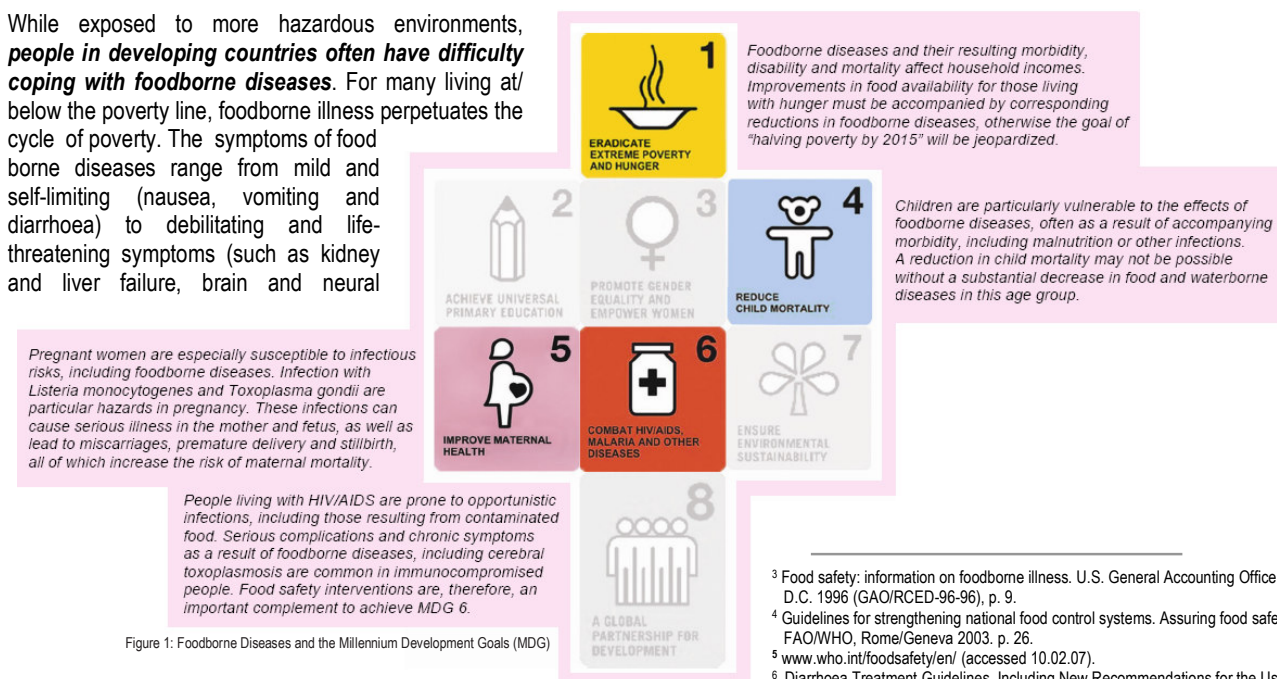


Figure 1: Foodborne Diseases and the Millennium Development Goals (MDG)

<sup>3</sup> Food safety: information on foodborne illness. U.S. General Accounting Office, Washington D.C. 1996 (GAO/RCED-96-96), p. 9.

<sup>4</sup> Guidelines for strengthening national food control systems. Assuring food safety and quality. FAO/WHO, Rome/Geneva 2003. p. 26.

<sup>5</sup> [www.who.int/foodsafety/en/](http://www.who.int/foodsafety/en/) (accessed 10.02.07).

<sup>6</sup> Diarrhoea Treatment Guidelines, Including New Recommendations for the Use of ORS and Zinc Supplementation for Clinic-Based Healthcare Workers. The MOST project/USAID/WHO/UNICEF, Arlington, 2005.



**economic development**, particularly challenging the tourist, agricultural and food (export) industry. Developing countries' access to food export markets will depend on their capacity to meet the international regulatory requirements determined by the Agreement on the Application of Sanitary and Phytosanitary Measures (SPS) of the World Trade Organization (WTO). Unsafe exports can lead to significant economic losses as shown in early 2008, when Indian poultry products valued at several hundred thousand USD were refused entry to Saudi Arabia and remained stranded on ships in the Persian Gulf and Arabian Sea following a bird flu outbreak in the Indian state of West Bengal.

#### IV. WHO Initiative to Estimate the Global Burden of FBD

In recent years, a new understanding of the importance of foodborne diseases has emerged. Since the Uruguay Round of Multilateral Trade Negotiations in 1994, international attention has focused on ensuring compliance with international norms and standards for food exports. In 2000, the World Health Assembly (WHA) of the World Health Organization (WHO) adopted WHA Resolution 53.15 on Food Safety, acknowledging foodborne diseases as a widespread and growing threat to health in all countries. In 2007 and in recognition of the growing threat posed by FBD worldwide, over 50 developed and developing countries adopted the Beijing Declaration on Food Safety at a high-level International Forum. The Declaration urges all countries to base their food safety measures on sound scientific evidence and risk analysis.

Despite the growing international awareness of foodborne diseases as a significant risk to health and socio-economic development, food safety remains marginalized. A major obstacle to adequately addressing food safety concerns is the lack of accurate data on the full extent and cost of foodborne diseases, which would enable policy-makers to set public health priorities and allocate resources. Epidemiological data on foodborne diseases remain scarce, particularly in the developing world. Even the most visible foodborne outbreaks often go unrecognized, unreported or uninvestigated and may only be visible if connected to major public health or economic impact.

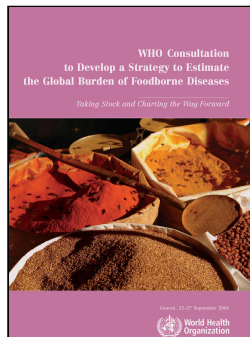


Figure 2: Consultation report <sup>7</sup>

In order to fill this current data vacuum, the WHO Department of Food Safety, Zoonoses and Foodborne Diseases (FOS) together with its partners launched the Initiative to Estimate the Global Burden of Foodborne Diseases<sup>7</sup>. This Initiative primarily strives:

**Goal:** To enable policy-makers and other stakeholders to set appropriate, evidence-based priorities in the area of food safety.

This is the first time an Initiative aims to generate estimates of foodborne disease burden from all causes of microbial, parasitic and chemical origin, and stratify the data by sex, age and WHO region. Burden of disease will be quantified using summary health metrics that combine morbidity, mortality and disability in the form of the Disability Adjusted Life Year (DALY)<sup>8</sup>. These burden estimates which can also be used for cost-effectiveness analyses will provide the scientific basis for the setting and evaluation of

food safety standards and guidelines, including those in Codex Alimentarius.

Specifically, the Initiative aims to achieve the following objectives:

**Objective 1:** To strengthen the capacity of countries in conducting burden of FBD studies and increase the number of countries who have undertaken a burden of FBD study.

**Objective 2:** To provide estimates on the global burden of FBD according to age, sex and WHO regions for a defined list of causative agents of microbial, parasitic, and chemical origin.

**Objective 3:** To increase awareness of and member states' commitment to the implementation of food safety standards.

**Objective 4:** To encourage countries to use burden of FBD estimates for cost-effective analyses of prevention, intervention and control

To meet these goals and objectives, the Initiative will apply two tracks:

- Foodborne Disease Burden Epidemiological Reference Group (FERG) has been established to assemble, appraise and report on burden of FBD estimates.
- in-depth country studies will supplement the work of FERG and enable countries to conduct their own burden of disease studies.

#### Track a) The Foodborne Disease Burden Epidemiological Reference Group (FERG)

After a thorough analysis of the experience and lessons learnt in similar WHO expert groups, WHO/FOS established the Foodborne Disease Burden Epidemiological Reference Group (FERG) as a technical advisory body. FERG members include scientists with outstanding international reputations in food sciences, epidemiology, veterinary sciences, microbiology, chemical and other risk assessment, food policy and regulation, statistics and geographic information systems, among others. FERG members were appointed by the WHO Director General following a public call for advisers in the scientific press and a transparent selection process. (*more information can be found on the internet: [www.who.int/foodsafety/foodborne\\_disease/ferg](http://www.who.int/foodsafety/foodborne_disease/ferg)*).

The FERG follows a strategic framework outlining its activities in the short-, medium- and long-term, (for details, cf. annex 2). Specifically, FERG engages in:

- assembling, appraising and reporting on existing burden of foodborne disease estimates,
- conducting epidemiological reviews for mortality, morbidity and disability in each of the major FBD,
- providing models for the estimation of FBD burden where data are lacking,
- developing cause and attribution models to estimate the proportion of disease that are foodborne,
- developing user-friendly tools for burden of FBD studies at country level.

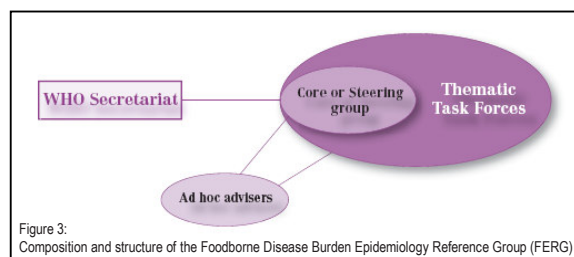
<sup>7</sup> WHO Consultation to Develop a Strategy to Estimate the Global Burden of Foodborne Diseases. WHO, Geneva, 2007. [www.who.int/foodsafety/publications/foodborne\\_disease/fbd\\_2006.pdf](http://www.who.int/foodsafety/publications/foodborne_disease/fbd_2006.pdf)

<sup>8</sup> The DALY measure combines the years of life lost due to premature death (YLL) and the years lived with disability (YLD) for varying degrees of severity, making time itself the common metric for death and disability. One DALY is a health gap measure, equating to one year of healthy life lost.

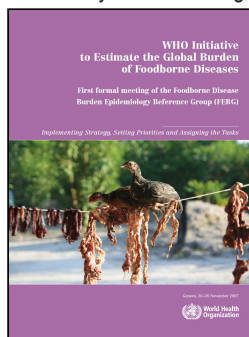
The Foodborne Disease Burden Epidemiology Reference Group (FERG) consists of:

- a **Steering Group**
- **4 Thematic Task Forces** (on Infectious Diseases (enteric & parasitic), on Chemicals and Toxins, on Source Attribution, on Country Studies Protocols) and
- **Resource Advisers** (called upon on an ad hoc basis).

FERG is coordinated by the **WHO Secretariat** in FOS.



FERG took up its burden of disease work in 2007. During the first formal FERG meeting in November 2007, the group established extensive workplans covering epidemiological work for 2008 in three major areas - enteric, parasitic and chemical causes<sup>9</sup>. These workplans, which are now being executed by the WHO Secretariat, include the commissioning of major pieces of review, research and modeling work. A peer-review system involving external reviewers ensures the quality and scientific rigour of this work. First interim results will be discussed in the second formal FERG meeting in November 2008 and presented to diverse constituencies with a major stake in food safety (i.e. food industry, consumer groups, WHO Member States, donor agencies, the media, etc.) at a stakeholders' event scheduled for November 2008.



The Task Force on Source Attribution commenced its work in April 2008. During a three-day meeting, attribution methods for enteric, parasitic and chemical foodborne diseases were evaluated, and further research to advance source attribution in each area proposed. A further Task Force will examine the economic burden (costs) to countries including costs to agricultural and health sectors.

Final burden estimates for all relevant pathogenic and chemical causes are expected to be available by 2011 (cf. annex 2 for more details).

#### Track b) Country studies of burden of foodborne diseases

The second track of the Initiative will focus on country burden of FBD studies and will be implemented from 2009 onwards. Field studies to estimate the burden of FBD will be piloted in selected countries to:

- supplement epidemiological reviews and test FERG epidemiological modeling results,
- build capacity in the area of national BoD studies.

At least 18 pilot sites (three in each WHO region) will be identified on the basis of the following criteria:

- political commitment to improving food safety standards,
- countries where the prevalence of foodborne disease is a recognized concern and where burden of illness evidence is scant,
- presence of a basic infrastructure to support the study (e.g. human and laboratory capacity).

The FERG Task Force on Country Burden of Disease Studies Protocols will be charged with developing user-friendly tools to enable countries to conduct their burden assessments in the area of foodborne diseases. This Task Force will commence its work in early 2009.

Track b will also comprise specific training opportunities designed and offered to various developing countries to increase their capacity in the field of foodborne disease burden estimation. Modules on burden of enteric foodborne disease estimation methods have already been included in the WHO Global Salmonella Surveillance (GSS) and will be expanded to include chemical, parasitic and zoonotic burden estimation.

## V. Monitoring, Evaluation and Dissemination

### a) Monitoring & Evaluation

All activities in relation to the Initiative will be monitored on an ongoing basis with systematic evaluations conducted at defined time points. To ensure impartiality and objectivity, evaluations will be outsourced to external consultants. While the first evaluation will serve to allow for course corrections and examine first outputs, the final summative evaluation will assess the Initiative's effectiveness in meeting its objectives, determine the validity of outcomes and define the lessons learned on the technical and managerial areas.

A monitoring and evaluation framework is being developed which will comprise indicators examining inputs, process, outputs, outcome and impact of the Initiative. The indicators will assess the elements outlined in the results chain below:

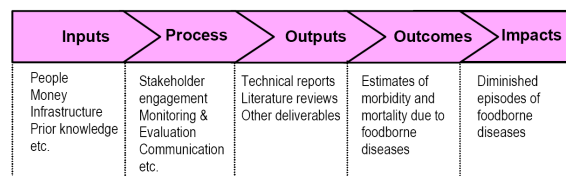


Figure 5: Results chain of the Initiative to Estimate the Global Burden of Foodborne Diseases

The monitoring and evaluation process will include reviewing the available documentation (FERG meeting and progress reports, commissioned papers etc.) as well as obtaining views on management, direction and productivity from members of the FERG, stakeholders and the WHO Secretariat. Formal evaluations will use systematic approaches, including standardized interviews with key stakeholders (such as users of FERG products), WHO Secretariat, and FERG members. Monitoring and evaluation reports will be widely disseminated to increase transparency and credibility of the Initiative and demonstrate accountability.

<sup>9</sup> WHO Initiative to Estimate the Global Burden of Foodborne Diseases. First formal meeting of the Foodborne Disease Burden Epidemiology Reference Group (FERG). WHO, Geneva, 2008. [www.who.int/foodsafety/publications/foodborne\\_disease/FERG\\_Nov07.pdf](http://www.who.int/foodsafety/publications/foodborne_disease/FERG_Nov07.pdf)

## b) Dissemination

To ensure effective use and dissemination of the FERG results, a detailed communication strategy was developed which integrates solid communication and advocacy efforts into the entire process of estimating the global FBD burden. The communication strategy strives to ensure effective internal communication among a range of actors related to the FERG and to provide successful outreach to all relevant stakeholders. This is important in order to raise awareness of and response to FERG results among policy-makers, and to inform the public health, development and scientific communities.

From the second year of FERG onwards, *reports describing progress with burden estimation and highlighting available results* will be published as WHO Discussions Papers on the WHO website, inviting comments from the scientific community. FERG will report on the overall results of its activities through:

- a Global Report and Global Atlas on FBD morbidity, disability and mortality. It is envisaged that both will be available on-line and use products and software available to scientists in developing countries.
- a peer reviewed paper series in a high-impact journal with at least 50% of authors from developing countries.

## VI. Organizational Capacity

The FBD Burden Initiative is capitalizing on existing WHO in-house experience. In the late 1990s, WHO adopted the methods of the Global Burden of Disease (GBD) Study which uses a rigorous approach for burden of disease estimation; scientists experienced in GBD approaches are serving in the WHO Secretariat. Moreover, precedents of external expert groups for burden estimation have been set through the Child Health Epidemiology Reference Group (CHERG) which quantified cause-specific child mortality, and the Malaria Monitoring and Evaluation Reference Group (MERG), among others. The WHO Secretariat analysed the lessons learnt from a number of WHO expert groups, and published its findings in December 2007 in the on-line journal Public Library of Science (PLoS), *Neglected Tropical Diseases*<sup>10</sup>. This analysis has guided the establishment of FERG.

## VII. Partners

The Initiative to Estimate the Global Burden of FBD has brought together an alliance of international technical partners and donors, including institutions such as the Centers for Disease Control and Prevention (CDC), USA, the European Centre for Disease Prevention and Control (ECDC), the Med-Vet-Net, the National Institute for Public Health and the Environment (RIVM) in The Netherlands, and the Ministries of Health in the Netherlands and Japan, among others.

The Initiative was established in collaboration with the Food and Agriculture Organization of the United Nations (FAO), the World Organisation for Animal Health (OIE) and other international organizations. It has strong links with relevant networks and institutions, including the Health Metrics and Evaluation Institute (HMEI) in Seattle, WHO Global Salm-Surv, the EU's Med-Vet-Net

and the International Collaboration on Enteric Burden of Illness Studies, among others.

Moreover, from the first FERG meeting on, the Initiative to Estimate the Global Burden of FBD has involved and worked in synergy with a wide range of stakeholders such as consumer groups, industry, academia and the media, to increase outreach, communication, and the uptake of the Initiative's outputs.

## VIII. Budgetary Requirements

WHO has made a considerable financial and long-term staffing investment in the FBD Burden Initiative. However, additional funds are needed, both for staff and activities.

### A. Personnel

Two technical staff to logistically and technically support the FERG task forces.

### B. FERG Meeting Costs

The travel and subsistence costs requested are described in detail in the budget template (annex 1) using average airfares to and from Geneva. They include:

- travel for the FERG core group semi-annual meetings
- travel for the FERG task force annual meetings

### C. Stakeholders meetings

WHO will invite multi-sectoral partners from all 193 WHO member states, the umbrella organizations of all relevant industries (food, agricultural and pharmaceutical), bi- and multilateral donor agencies, scientific networks and platforms, NGOs, consumer groups and civil society, and the scientific and public media (draft agenda available upon request). WHO will ask all invitees from industrialized countries to self-fund their participation, but requests funding for the attendance of 60 participants from developing countries herewith.

### D. Costs for contracted services

Contracted work for 2009 includes:

- 3 systematic reviews on FBD burden
- 3 major FBD burden research studies
- preparation and printing costs for 4 reports
- materials to communicate the Initiative's results through other channels
- external consultants to conduct an evaluation of the Initiative

### E. Country FBD burden pilot studies

9 country FBD burden pilot studies are scheduled for 2009, requiring:

- travel for WHO adviser to train local staff in use of protocol
- salary of local epidemiologist for 12 months to perform study
- salary of local assistant to epidemiologist
- other services (incl. software, office supplies)

### F. Other Costs

Project Support Costs (PSC) which WHO charges at 13% of the total costs have been added to the proposal. This is the WHO standard rate for all extra-budgetary activities.

<sup>10</sup> Stein C, Kuchenmüller T, Hendrickx S, Prüss-Üstün A, Wolfson L, Engels D, Schlundt J. The Global Burden of Disease Assessments - WHO Is Responsible? *PLoS Negl Trop Dis*. 2007 December; 1(3): e161.

## IX. Conclusion

The Initiative to Estimate the Global Burden of Forborne Diseases fills a long-standing data vacuum. It will provide stakeholders with the scientific evidence to prioritize preventive action, assess the impact of food safety measures and advise on the cost-effective use of resources. It is an integral part of WHO's global efforts to foster public health security and international development.

Although WHO itself has made a considerable financial investment in the Initiative and is supported by an alliance of donors, the Initiative continues to require additional funding of approximately 2.3 million USD per year in order to conduct its activities.

## Annex 1: Budget for the Initiative to Estimate the Global Burden of FBD for 2009

Budget Line Items	# in Year 3	USD/Year 3 (2009)
<b>Personnel</b>		
Technical support person for task forces	2	140,000.00
<b>Total costs for personnel</b>		<b>140,000.00</b>
<b>Travel for FERG meetings</b>		
Round-Trip à \$ 5000.00 each for FERG-Advisers to convene twice per year for:		
• the chair		
• 6 epidemiologists		
• 2 persons from the WHO Secretariat		
• potentially 3 chairs of the task forces	2	130,000.00
Per Diem for advisers at the 5-day FERG Meetings in Geneva (350.00 USD/day)	2	45,500.00
<b>Total travel costs for FERG meeting</b>		<b>175,500.00</b>
<b>Travel for FERG Task Force meetings</b>		
Round-Trip à \$ 5000.00 each for the Advisers of Task Force Meetings to convene once per year for:		
• the chair		
• 12 experts		
• 3 persons from the WHO Secretariat	4	320,000.00
Per Diem for advisers at Task Force Meetings in Geneva for 5 days (\$350.00 day)	4	112,000.00
<b>Total travel costs for FERG meeting</b>		<b>432,000.00</b>
<b>Stakeholders meeting</b>		
Round-Trip à \$ 5000.00 each		
60 participants from developing countries	1	300,000.00
Per Diem for advisers in Geneva (350.00 USD/day)	1	63,000.00
<b>Total travel costs for FERG stakeholders meeting</b>		<b>363,000.00</b>
<b>Contracted services</b>		
Systematic reviews at \$ 40,000.00 each	3	120,000.00
Major research studies at \$ 70,000.00 each	3	210,000.00
Preparation and printing of reports at \$ 10,000.00 each	4	40,000.00
Preparation & design of communication materials incl. press kits	1	5,000.00
External consultant's fee for evaluation and report (US\$ 5,000)	1	5,000.00
<b>Total costs for contracted services</b>		<b>380,000.00</b>
<b>Country FBD burden pilot studies</b>		
Travel for WHO adviser to train local staff in use of protocol (US\$ 5,000)	9	45,000.00
Salary of local epidemiologist for 12 months to perform study (US\$ 40,000)	9	360,000.00
Salary of local assistant to epidemiologist (US\$ 15,000)	9	135,000.00
Other services (incl. software, office supplies) at US\$ 5,000	9	45,000.00
<b>Total costs for country studies</b>		<b>585,000.00</b>
<b>Funds required (direct costs)</b>		<b>2,075,500.00</b>
<b>Total Costs of funds sought incl. 13% PSC</b>		<b>2,345,315.00</b>



**Annex 2 :Strategic framework for the Initiative to Estimate the Global Burden of Foodborne Diseases**

