

BRAFO

A European Commission Specific Support Action to Investigate the Risk-Benefit Analysis of Foods



Background

There is considerable disparity in the way in which benefits and risks are compared for compounds found in food, relying almost always on subjective judgement. It is therefore vital that a common strategy be developed, which enables the quantitative comparison of human health risks and benefits, using a common scale of measurement, to better estimate the net health impact of foods and food compounds.

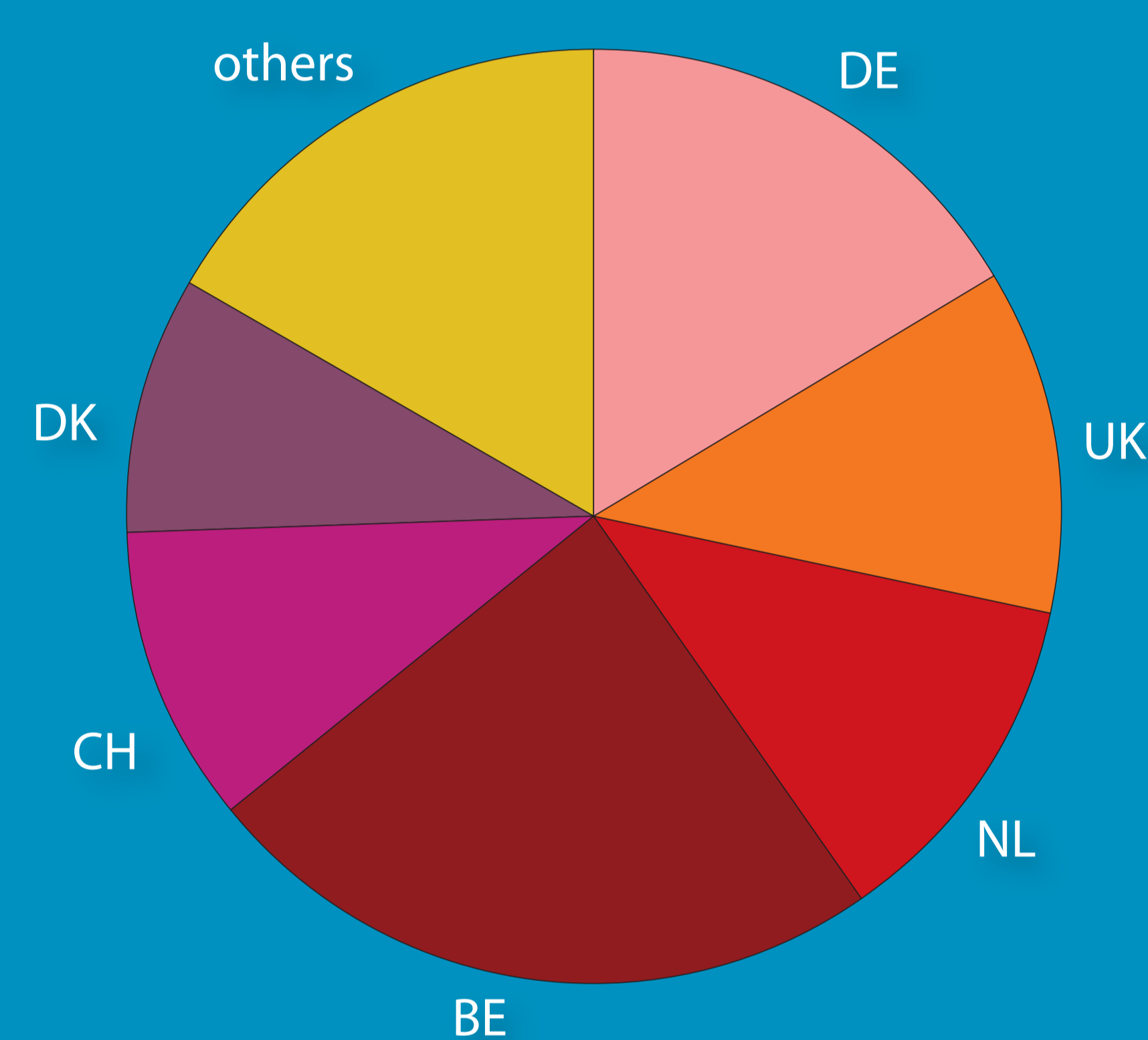
Objectives

- To develop a framework that allows quantitative comparison of human health risks and benefits of foods and food compounds based on a common scale of measurement
- To test the developed methodology(ies) on selected case studies
- To adjust the model(s) according to the outcomes of the case studies
- To disseminate results to as wide audience as possible

Potential Impact

- The availability and application of a risk-benefit analysis (RBA) framework, intended to be applicable to a wide range of foods and food components, will facilitate decision-making in public health nutrition, including health claims
- Eventually public health will benefit

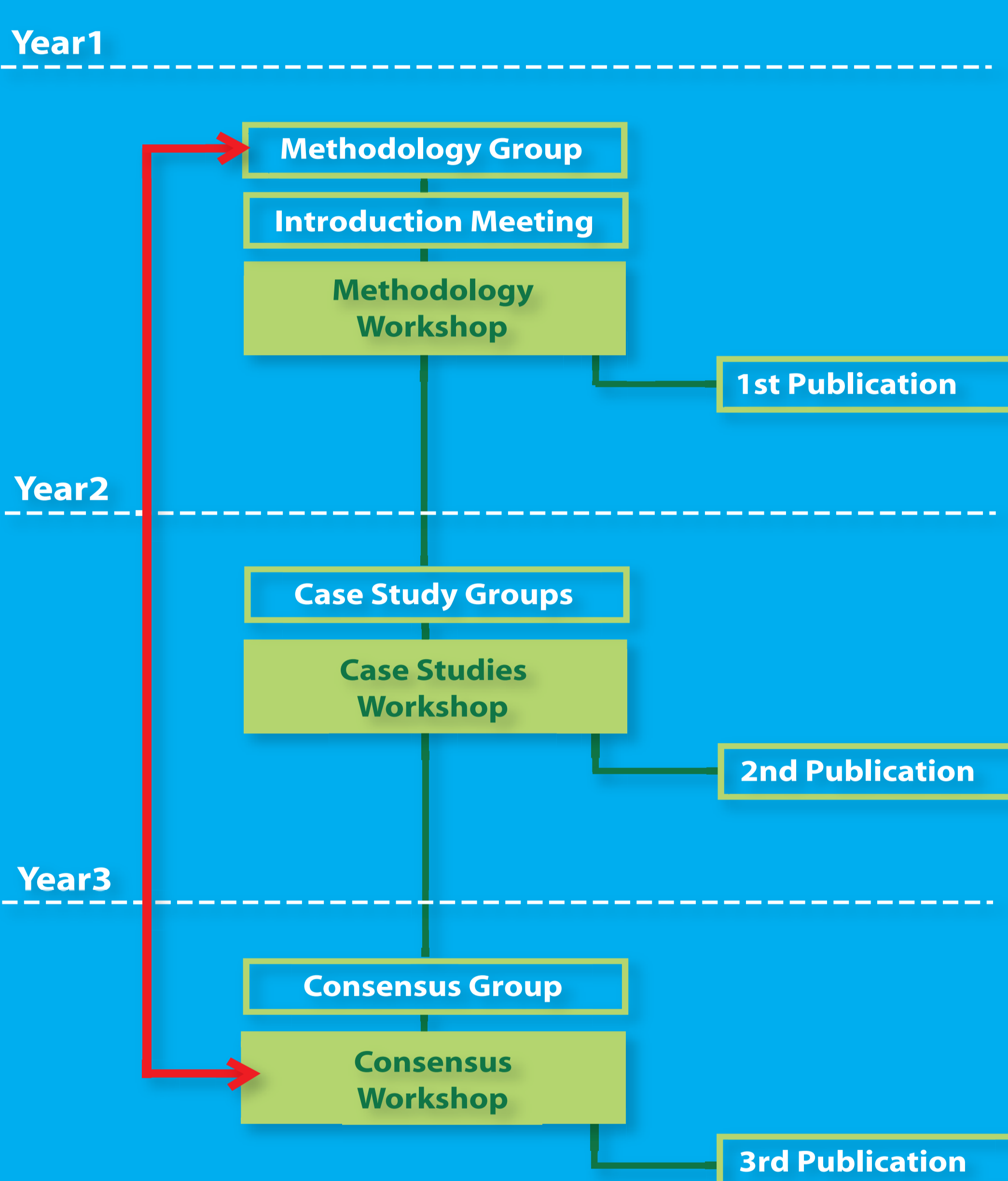
Total number of participants: 67



Others: Finland, France, Hungary, Ireland, Italy, Latvia, Spain, Sweden, and Turkey

Corresponding organisations include the European Food Safety Authority (EFSA) and the World Health Organization (WHO).

Timeframe



Duration of the project: 1 September 2007 – 31 December 2010

Partners

- International Life Sciences Institute Europe (ILSI) – Dr. Stéphane Vidry – Mr. Alessandro Chiodini
- Imperial College London (ICL) – Prof. Alan Boobis
- Procter & Gamble (PG) – Dr. Katrin Schütte
- National Institute for Public Health & Environment (RIVM) – Dr. Hans Verhagen
- Max Rubner Institut (MRI) – Prof. Gerhard Rechkemmer

The project is carried out with the financial support of the European Commission, DG Research under the Sixth Framework Programme (FP6), Priority 5, Food Quality and Safety

Co-ordinated by ILSI Europe

Contacts

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Description of Work

WP 1 – Project Management

Administrative co-ordination of the project
 Overall financial management
 Enhancing communication and interaction between members
 Chairing the Steering Committee

WP 2 – Steering Committee

Ensuring that the work programme of all WPs are executed and that deliverables are met
 Providing scientific and strategic advice
 Assisting WP1 in running the project

WP 3 – Methodologies

Grouping methodologies that can be used for risk-benefit analysis

- QALY (Quality Adjusted Life Years)
- DALY (Disability Adjusted Life Years)

Remodelling, designing new methodology(ies)
 Adjusting methodology(ies) according to case study results/findings
 Identification of key messages to be communicated to stakeholders

Case Studies

Describing beneficial and adverse effects of different foods or food components in qualitative and quantitative terms by taking into account:

- subgroups
- intake levels
- probability of effect

Qualitative and quantitative comparison of benefits and risks based on a common scale of measurement as developed by WP3

The test cases were chosen to cover different aspects. As such the benefits and risks of a food or food component could be associated with the same compound (e.g. folic acid) or with different components in one matrix (e.g. long-chain PUFA and mercury, both in fish). It is also possible that the benefits and risks are not found in the same population or the population at large.

Case Study Matrix

RBA on a single food component	RBA on total food
RBA on populations at large	RBA on different subpopulations

WP 4 – Natural Foods

This WP will investigate the risks and benefits associated with the consumption of fish and soy.

BENEFITS	RISKS
Oily fish (ω-3 PUFA) lower risk of coronary heart disease healthy development of foetuses and infants	Oily fish (dioxin, methylmercury) cancer development developmental changes in the foetus
Soy (proteins, isoflavones) reduced risk of prostate cancer reduced risk of osteoporosis	Soy (isoflavones) increased risk of breast cancer

WP 5 – Dietary Interventions

This WP will involve the assessment of benefits and risks associated with folic acid, across intake levels, (as an example of food fortification) and with macronutrient replacements (as an example of food substitution).

BENEFITS	RISKS
Folic acid prevention of Neural Tube Defects reduced risk of cardiovascular disease	Folic acid pernicious anaemia (via masking of vitamin B12 deficiency)
Fat replacement agents Intense sweeteners lower caloric intake lower BMI lower risk of overweight	Fat replacement agents Intense sweeteners lower plasma carotenoid levels anal leakage discomfort residual risk above ADI

WP 6 – Heat Processing

This WP will focus on the risks and benefits associated with the heat processing of foods.

BENEFITS	RISKS
Temperature reduced risk microbial spoilage extended product shelf life	Temperature formation of harmful chemicals during heat treatment of foods (e.g. acrylamide, AGEs, nitrosamines, PAHs, HAAs)

WP 7 – Consensus

Combining and integrating results of WPs 3-6
 Harmonisation of approaches and methodologies
 Identification of framework limitations
 Assisting WP8 in identifying key messages to be further communicated

WP 8 – Dissemination

Developing strategies for dissemination
 Identifying key messages to be further communicated
 Organisation of short training sessions

