

Monitoring exposure to food chemicals



Collecting worldwide food chemical exposure data to support the establishment of food safety standards

What is the issue?

The world-wide monitoring exposure to food chemicals provides information on the risks associated with the consumption of food and the quantity of the food chemical which may render it injurious to health.

What is WHO doing?

The **Global Environment Monitoring System - Food Contamination Monitoring and Assessment Programme**, which is commonly known as **GEMS Food**, has collected levels and trends of chemical contaminants in food and their contribution to dietary exposure. This information is collected from worldwide collaborating centres and recognized national institutions used to inform governments, the Codex Alimentarius Commission and other relevant institutions, as well as the public.

Why is exposure assessment important?

WHO uses the information collected from the GEMS Food to make an exposure assessment for the food chemical which is a key component of the risk assessment. In addition, WHO develops and promotes the harmonization of methodologies for exposure assessment and encourages the central reporting of national data to serve as international scientific advice.

How is the GEMS Food organized?

The GEMS Food consists of three main areas of activity:

- Data collection,
- Training and capacity building,

- Development and dissemination of guidelines and recommendations.

Achievements to date

WHO developed an approach to describe the various diets around the world based on the analysis of per capita supply available from the FAO Food Balance Sheets.

- The **GEMS cluster diets** consist in national dietary patterns grouped by similarities. These 17 cluster diets updated in 2012 are commonly used by international committees for exposure assessment to food contaminants and pesticide residues.

WHO and FAO also collect national individual food consumption data. At date individual data representing more than 40% of the world population were made available to WHO.

- The **FAO/WHO Chronic individual food consumption database** – Summary statistics (CIFOCCS), hosted by WHO, is currently containing summary statistics of 37 surveys from 26 countries.
- The GEMS Food Programme supports the collection of food consumption data in ASEAN Countries as well as the harmonization of existing data.

The GEMS Food Programme supports the implementation of Total Diet Studies; Total Diet Studies are implemented in more than 20 countries from which the leaders are actively involved in the GEMS Food network and contribute to improve this methodology.

- An ongoing regional Total Diet Study in Sub Saharan Africa should provide crucial information to improve food safety and international trade.

The mission of the WHO Department of Food Safety and Zoonoses is to lower the burden of food-borne diseases, thereby strengthening the health security and ensuring sustainable development of Member States.

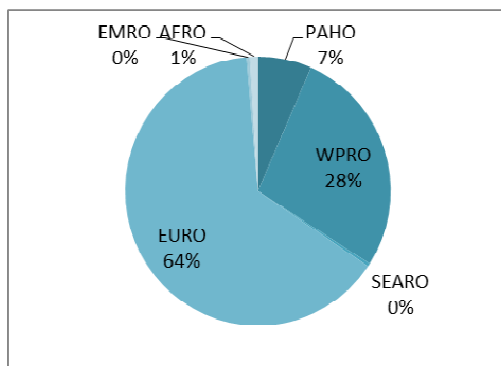
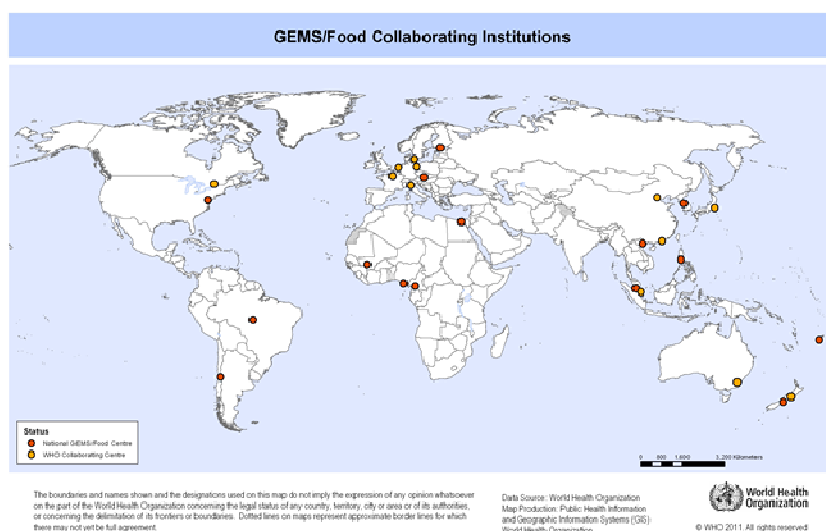


Figure 1: Analytical data on chemicals in food by WHO region

- Since the implementation in 2011 of a new web-based interface the GEMS Food collected more than 2,600,000 analytical results on the occurrence of about 300 chemicals in food.
- In 2016 the GEMS Food started collecting data from the private sector and developed specific agreement to define the use of these data.
- WHO in collaboration with Chulabhorn Research Institute (Thailand) developed an online learning tool to facilitate the use of GEMS Food data.

Planned activities

- To develop, in collaboration with FAO, the free online platform GIFT, (**Global Individual Food consumption data Tool**) containing individual quantitative food consumption data from any country.
- To support WHO regional offices and country offices to promote the implementation of national Total Diet Studies (TDS) and to encourage countries to report TDS results to the GEMS Food Programme,
- To provide guidance on the use on TDS results for exposure assessment
- To support countries that contribute to the GEMS Food network and share national data to serve international risk assessment,
- To improve statistical description of data to identify the sources of uncertainty in exposure assessment,



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