MegaMUN 2026

World in transition

WHO committee

Tackling health concerns linked to the consumption and production of large-scale industrial and genetically modified food

Letter from the chairs

Dear Delegates,

We are thrilled to welcome you to the WHO Committee and want to thank you for your participation.

In this committee, we will discuss how the production and consumption of large-scale industrial and genetically modified food affect one's health. This is a broad and complex topic, and we recognize that opinions may vary. To ensure a productive and smooth debate, we kindly ask that you come thoroughly prepared. Your preparation will be crucial in enabling meaningful discussions and coming up with valuable solutions.

We hope that researching this topic will offer you a fresh perspective and help you understand the real-world implications and risks of this issue. We also hope you enjoy the time spent in the committee, even though it might feel intimidating for our newcomers ;)
The study guide we've prepared should give you a solid foundation for your own research, but we encourage you to reach out to us if you have any questions or need clarification. We're here to help :)

We look forward to having a great session!

Sincerely,
Chair of WHO, **Flavio** Jager
Chair of WHO, **Seohyeon** Choi MEGAMUN

Introduction to the committee

The World Health Organization (WHO) is a specialized agency of the United Nations, founded in 1948 with the fundamental mission of promoting the **highest attainable standard of health for all people**. As the leading international authority on global public health, the WHO coordinates efforts to prevent, monitor and respond to health emergencies, while also guiding long-term strategies to strengthen healthcare systems worldwide. Its work includes disease prevention, epidemiological research and the development of evidence-based standards, particularly in areas where lifestyle and environmental factors, such as nutrition and food systems, have a direct impact on population health.

Beyond crisis management, the WHO plays a crucial role in fostering equity in healthcare access, ensuring that vulnerable and underserved populations are not left behind. Through collaborations with governments, NGOs, scientific institutions and regional offices, the organization helps member states build effective health infrastructures capable of responding to both **current** and **emerging challenges**. By relying on scientific expertise and international cooperation, the WHO remains a central actor in the global pursuit of healthier and more sustainable societies.

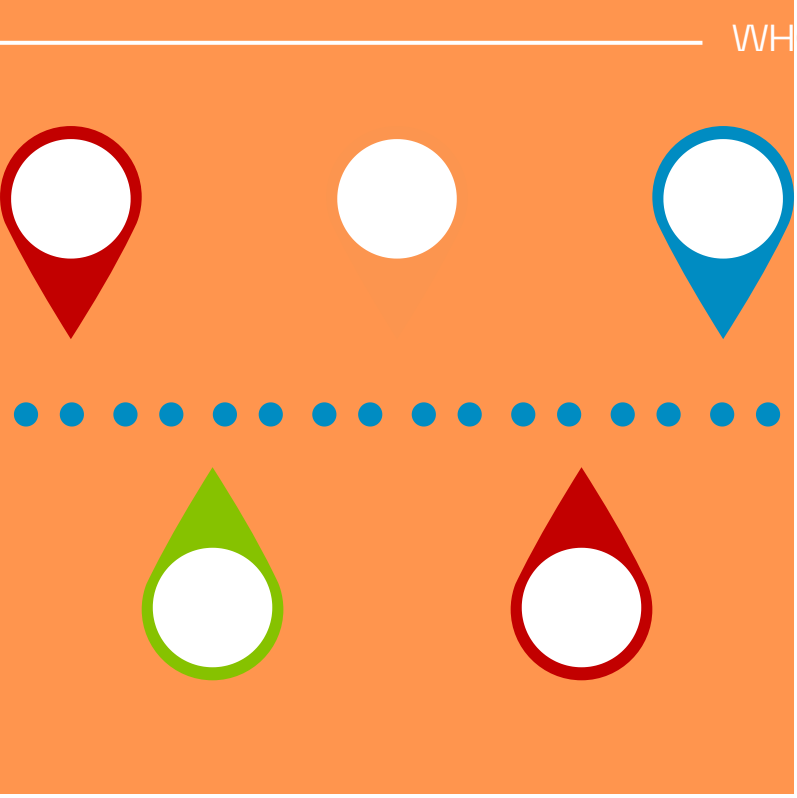
In this committee, you will examine the major public-health issues currently affecting global stability and human wellbeing. The committee provides a platform to explore global health challenges, strengthen international cooperation, and shape collective responses aimed at improving health outcomes worldwide.

Introduction to the topic

The consumption of large-scale industrial and genetically modified food presents significant challenges for public health due to its potential impact on overall health outcomes. Contemporary dietary patterns are increasingly shaped by the widespread **availability** of ultra-processed products, artificial additives and intensive agricultural practices, which may disrupt nutritional balance and influence long-term health. Given their extensive distribution and prolonged exposure across populations, these trends raise growing concerns within the public-health community.

Public-health research has consistently identified strong associations between frequent consumption of industrially processed food and the rising prevalence of **non-communicable diseases**. Diets high in added sugars, unhealthy fats and sodium are closely linked to conditions such as obesity, type 2 diabetes and cardiovascular diseases. Beyond these outcomes, sustained reliance on ultra-processed products has been associated with metabolic dysfunctions and chronic inflammatory responses, increasing vulnerability to further health complications over time.

In addition to nutritional concerns, attention has been drawn to potential risks related to exposure to pesticide residues, food contaminants and certain chemical additives used in large-scale food production. While these substances are generally subject to regulatory control, their cumulative and long-term effects remain a subject of scientific investigation. Together, these health impacts place increasing pressure on healthcare systems and highlight the importance of preventive public-health strategies aimed at ensuring access to safe, sufficient and nutritious food.



Historical context

The current global food system largely emerged in the **post–World War II** period, when governments sought to **prevent food shortages** and respond to **rapid population growth**. Agricultural policies focused on increasing yields through mechanization, synthetic fertilizers, and pesticides, laying the foundations of large-scale industrial agriculture centered on **efficiency** and **productivity**.

A major shift occurred during the **Green Revolution** of the 1950s and 1960s. The introduction of high-yield crop varieties, irrigation systems, and chemical inputs significantly increased agricultural output, particularly in Asia and Latin America. Food production began to grow faster than population levels, reducing famine risks while increasing **dependence on intensive farming practices**.

From the **1980s** onward, globalization and urbanization further transformed food systems. Advances in food processing, storage, and transportation enabled the mass distribution of processed foods, while lifestyle changes **increased demand for convenient and ready-to-eat products**. The commercialization of genetically modified crops in the **1990s** reinforced **large-scale, efficiency-driven production models** and global supply chains.

Overall, these developments greatly improved **food availability** but did not consistently improve **diet quality**. The historical focus on productivity and efficiency over nutritional outcomes helped shape the modern food environment and contributed to the health challenges linked to current dietary patterns.

Current situation

The global food system today is characterized by a strong reliance on industrial-scale production and biotechnology to meet the nutritional demands of a growing population. This model has been largely successful in increasing food supply, stabilizing prices, and reducing the risk of large-scale shortages. However, it has also led to a growing **dependence** on standardized, highly processed food products, raising concerns about the long-term sustainability of current dietary patterns from a public health perspective.

A key issue lies in the **structure of modern food environments**. In many countries, especially urban areas, ultra-processed foods are the most accessible, affordable, and heavily marketed options. As a result, consumer choice is often shaped more by availability and price than by nutritional value. This has contributed to a gradual shift away from traditional diets toward **energy-dense**, **nutrient-poor** foods, particularly among younger populations. According to a report from the World Health Organization, global adult **obesity** has risen from roughly 8 % in 1990 to over 16 % in 2022, and childhood obesity rates have nearly tripled in many regions over the past three decades. These trends reflect widespread changes in dietary patterns rather than isolated local phenomena.

At the regulatory level, significant disparities exist between countries. Safety assessments, labeling requirements, and monitoring of genetically modified foods and agricultural chemicals vary widely. While some states enforce strict controls, others lack the infrastructure or resources to ensure consistent oversight. This **uneven regulation** complicates international trade and raises concerns about cumulative exposure to chemical residues and food additives over time, especially in regions with weaker enforcement mechanisms. For instance, pesticide exposure and residue levels often correlate with intensive farming practices, yet systematic monitoring remains limited in many low- and middle-income countries.

Current situation

Science continues to debate the long-term health implications of genetically modified crops and intensive agricultural practices. Although many GM products are considered safe under current standards, **uncertainties** persist, particularly regarding indirect effects related to pesticide use, environmental exposure, and dietary patterns over years or decades. These uncertainties highlight the limits of existing data and the ongoing need for research and surveillance rather than definitive conclusions.

The consequences of these shifts extend beyond individual health outcomes to national **healthcare systems**. Non-communicable diseases (especially cardiovascular diseases, diabetes, and certain cancers) are now among the **leading causes of death worldwide**, accounting for around 74 % of all deaths, with a significant proportion linked to **poor diet** and **physical inactivity**. In many high- and middle-income countries, healthcare spending attributed to diet-related conditions represents more than 5 % of total public health expenditure, adding **financial strain** to already overburdened systems.

Overall, the current situation reflects a food system caught between the need for **efficiency** and the **responsibility to protect public health**. Existing production models have reduced hunger in some regions but have also contributed to new health challenges linked to modern diets. Without coordinated international efforts to improve regulation, transparency, and access to healthier food options, these challenges are likely to intensify in the coming years.

Main Issue

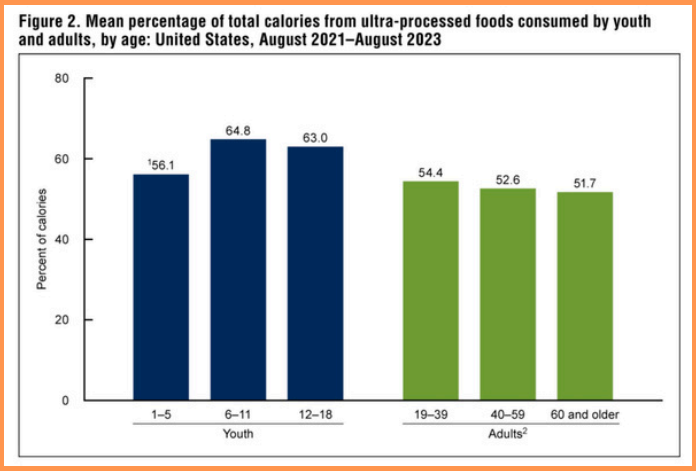
Over the past decades, the global food system has undergone a profound transformation, marked by the rise of large-scale industrial production, genetically modified organisms (GMOs), and ultra-processed foods. While these developments have contributed to increased food availability and lower production costs, they have also raised serious concerns regarding their **impact on human health**. Today, the central issue lies in the growing gap between food quantity and food quality, and the long-term consequences this imbalance has on global public health.

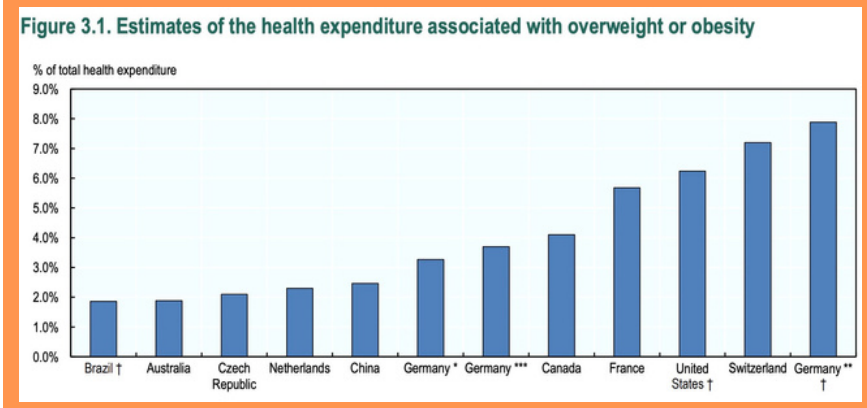
One of the most visible and alarming consequences is the rapid increase in obesity rates worldwide, particularly among children and adolescents. Diets increasingly dominated by ultra-processed foods (often high in added sugars, unhealthy saturated fats, salt and artificial additives) are strongly associated with excessive weight gain and metabolic disorders. Childhood obesity, once limited to high-income countries, is now also rising sharply in low- and middle-income regions, increasing the risk of type 2 diabetes, cardiovascular diseases and reduced life expectancy at an early age. This trend represents not only an individual health issue, but also a growing burden on healthcare systems globally.

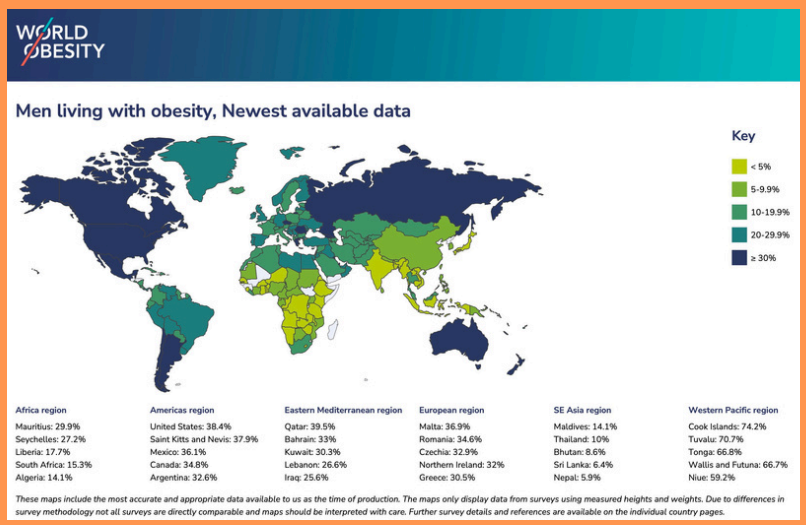
Beyond obesity, concerns extend to less visible but equally serious health risks. Many industrially produced and genetically modified foods involve the use of pesticides, herbicides, and chemical residues, some of which are **suspected or are proven to be endocrine disruptors**. These substances can interfere with the hormonal system, potentially affecting growth, fertility, neurological development and immune function. Scientific studies have raised concerns about long-term exposure, particularly during critical stages such as pregnancy and childhood, when hormonal balance plays a crucial role.

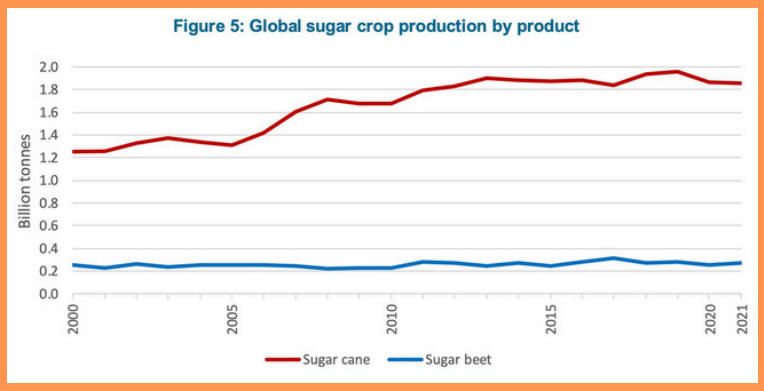
Genetically modified foods themselves remain a subject of scientific and societal debate. While GMOs are often presented as a solution to food insecurity and agricultural efficiency, uncertainties persist regarding their **long-term health effects**, especially when combined with intensive **chemical use** and **insufficient regulatory** oversight in certain regions. The lack of transparency, clear labeling and public awareness further complicates informed consumer choice.

Essentially, the main issue is not exclusively the existence of industrial or genetically modified food, but the **absence of a health-centered approach in their production, regulation, and consumption**. Most current food systems are designed to maximize **profit and productivity**, often putting human health in second place, which makes finding a model that is both profitable and safe a major challenge.









Actions of UN

The United Nations has taken several actions to address health concerns related to industrial and genetically modified food. The World Health Organization (WHO) develops guidelines on nutrition, non-communicable diseases, and food safety, conducts research on health impacts, and supports member states in monitoring food safety. The World Health Organization (WHO) promotes healthier diets by reducing sugar, salt, saturated fats, and eliminating industrial trans fats, while strengthening food safety systems. The Food and Agriculture Organization (FAO) promotes sustainable agriculture and food security, works with WHO to assess risks from pesticides and genetically modified foods, and provides technical assistance to countries. The Codex Alimentarius Commission sets international food safety and labeling standards to protect consumer health, including limits on pesticide residues and food additives. UNICEF focuses on child nutrition by reducing malnutrition and promoting access to healthy foods. The United Nations Environment Programme (UNEP) addresses environmental impacts of industrial agriculture, such as pollution and pesticide use, to indirectly protect human health.

Points to consider

Public Health Impacts

- What are the health impacts of industrial and genetically modified food on non-communicable diseases?

Food Safety and Regulatory Frameworks

- Are current international food safety and GMO regulations sufficient to protect public health?

Nutritional Quality of Food

- How do industrial processing and genetic modification affect nutritional quality?

Production Methods and Indirect Health Effects

- How do chemicals used in large-scale food production impact human health?

Food Security and Global Inequality

- How can industrial and genetically modified food support food security while minimizing health risks?

Role of International Cooperation and Public Awareness

- What role should WHO and international cooperation play in addressing these health concerns?

Main organisations

World Health Organization (WHO)

The WHO leads global efforts to address public health concerns related to food consumption and production. It researches the health impacts of industrial and genetically modified food and provides guidance on nutrition and non-communicable diseases.

Food and Agriculture Organization of the United Nations (FAO)

The FAO focuses on food security, nutrition, and sustainable agriculture. It works with WHO to assess the health implications of large-scale industrial and genetically modified food production.

United Nations Children's Fund (UNICEF)

UNICEF addresses the effects of food systems on child health and nutrition. It focuses on malnutrition and the impact of industrially processed food consumption on children.

United Nations Environment Programme (UNEP)

UNEP examines the environmental consequences of large-scale industrial agriculture, including pollution and pesticide use. These environmental factors have indirect but significant impacts on human health.

Dictionary

Large-scale Industrial Food Production
The mass production of food using intensive farming methods and chemical inputs to maximize efficiency and output.

Genetically Modified Organisms (GMOs)
Organisms whose genetic material has been altered through biotechnology to achieve specific traits.

Non-Communicable Diseases (NCDs)
Long-term diseases that are not infectious, often linked to diet and lifestyle factors.

Food Safety
Measures and conditions that prevent foodborne illness and protect human health.

Food Security
The ability of all individuals to access sufficient, safe, and nutritious food.

Ultra-Processed Foods
Industrially manufactured foods containing additives and high levels of sugar, salt, or fats.

Pesticides
Chemical substances used to control pests in agricultural production.

Antibiotic Use in Agriculture
The use of antibiotics in livestock to prevent disease or promote growth.

Codex Alimentarius (Commission)
International food safety standards developed by WHO and FAO to protect consumers. These standards aim to protect consumer health and regulate genetically modified food products.

Environmental Health
The relationship between environmental conditions and their effects on human health.

Most involved countries

USA

World’s largest GMO producer

China

Biggest global food consumer

Brazil

Major GMO crop exporter

India
Key GMO regulation battleground

Argentina
High GMO agriculture dependence

Indonesia
World's top palm oil producer

HELPFUL SOURCES

- International affairs - Food Safety - European Commission
- Food Safety
- OECD Health Policy Studies - The Heavy Burden of Obesity
- Food, genetically modified
- Multisectoral actions in food systems
- Nutrition | UNICEF
- Food and Agriculture Organization of the United Nations
- 48th session of the Codex Alimentarius Commission

SOURCES USED

- Forty-eighth session of the FAO/WHO Codex Alimentarius Commission adopts new standards
- Library | UN-Nutrition: the United Nations inter-agency coordination mechanism for nutrition.
- Data about worlwide obesity
- Standards and Scientific Advice on Food and Nutrition (SSA)
- 48th session of the Codex Alimentarius Commission
- FAO/WHO Call for More International Collaboration to Solve Food Safety and Quality Problems
- Questions and answers on the Codex Alimentarius Guidelines for Ready to Use Therapeutic Foods (RUTF) | UNICEF Supply Division
- Food and Agriculture Organization (FAO) | Department of Economic and Social Affairs
- Agricultural production statistics 2000–2021
- Products - Data Briefs - Number 536 - August 2025
- Multisectoral actions in food systems